

# MZ-EP11

## SERVICE MANUAL

Ver 1.2 2004. 03



*US Model  
Canadian Model  
AEP Model  
UK Model  
E Model  
Tourist Model*

US and foreign patents licensed from Dolby Laboratories Licensing Corporation

Model Name Using Similar Mechanism	NEW
MD Mechanism Type	MT-MZEP10-129
Optical Pick-up Mechanism Type	ODX-1A

### SPECIFICATIONS

#### MD Section

Audio playing system  
Minidisc digital audio system

Laser diode properties  
Material : GaAlAs  
Wavelength :  $\lambda = 790\text{nm}$   
Emission duration : continuous

Laser output : less than  $44.6 \mu\text{W}^*$   
\* This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7mm aperture.

Revolutions  
400 rpm to 900 rpm (CLV)

Error correction  
Advanced Cross Interleave Reed Solomon Code (ACIRC)

Sampling frequency  
44.1kHz

Coding  
Adaptive Transform Acoustic Coding (ATRAC)

Modulation system  
EFM (Eight to Fourteen Modulation)

Number of channels  
2 stereo channels  
1 monaural channel

Frequency response  
20 to 20,000 Hz  $\pm 3 \text{ dB}$

Wow and Flutter  
Below measurable limit

Outputs  
Headphones : stereo mini-jack, maximum output level 5mW+5mW, load impedance 16 ohm

#### General

Power requirements  
Nickel cadmium rechargeable battery NC-6WM (supplied)  
(EXCEPT US, Canadian model)  
One LR6 (size AA) batterie (not supplied)  
Sony AC Power Adaptor AC-E15L <sup>1)</sup> (not supplied) connected at the DC IN 1.5V jack

Battery operation time  
See "When to replace or charge the battery"

Dimensions  
Approx. 80 x 18.5 x 104 mm (w/h/d)  
(3 1/4 x 3/4 x 4 1/8 in) not including projecting parts and controls

Mass  
Approx. 160 g (5.6 oz.) the player only  
Approx. 200 g (7.1 oz.) incl. a premastered MD and a nickel cadmium rechargeable battery NC-6WM

Supplied accessories  
Battery charger (1) (EXCEPT US, Canadian model)  
Rechargeable battery (1) : NC-6WM, 1.2V, 600mAh Ni-Cd  
(EXCEPT US, Canadian model)  
Rechargeable battery carrying case (1)  
(EXCEPT US, Canadian model)  
Headphones with a remote control (1)  
Carrying pouch (1)  
Ear pad (2) (EXCEPT US model)

Design and specifications are subject to change without notice.

## PORTABLE MINIDISC PLAYER

9-923-222-14

2004C02-1

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**Sony Corporation**

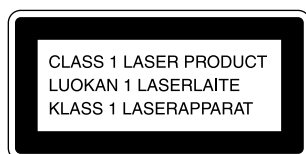
**Personal Audio Company**

**Published by Sony Engineering Corporation**

# SONY®

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This Mini Disc player is classified as a CLASS 1 LASER product.

The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

“MD WALKMAN” is a trademark of Sony Corporation.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

### Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

### SAFETY-RELATED COMPONENT WARNING!!

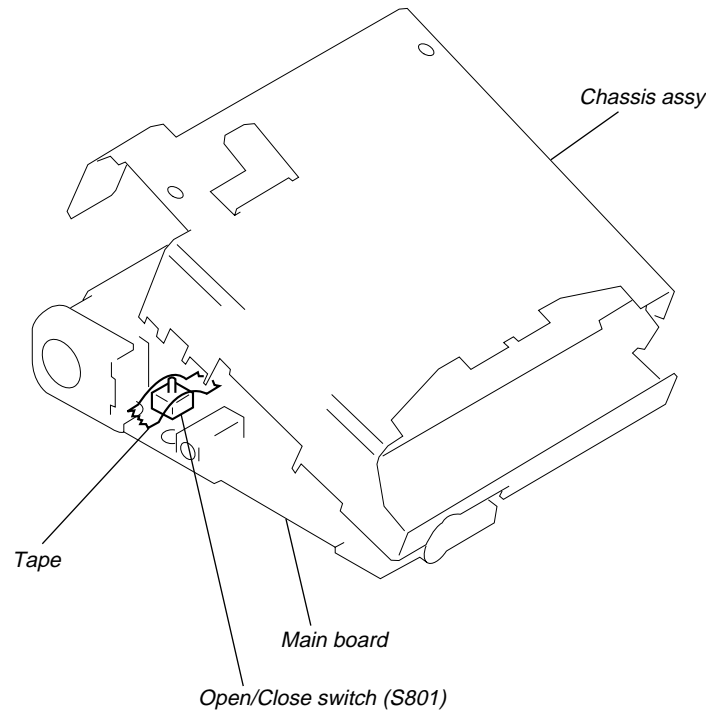
COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

## SECTION 1 SERVICING NOTE

When repairing this device with the power on, if you remove the main board, this device stops working.  
In this case, you work without the device stopping by fastening the hook of the Open/Close detection switch (S801) with tape.



## OPERATIONS OF MECHANISM (MZ-EP11)

### When loading a disc

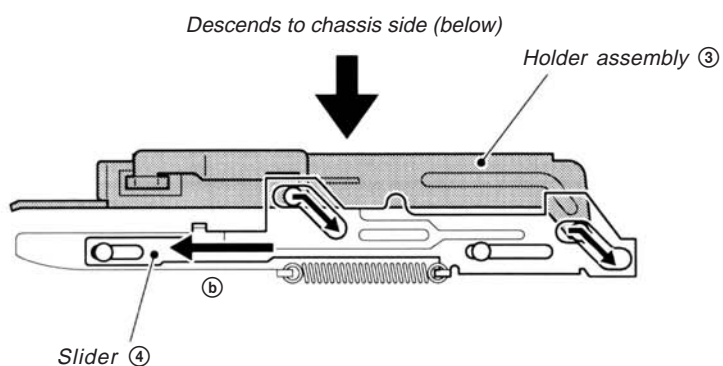
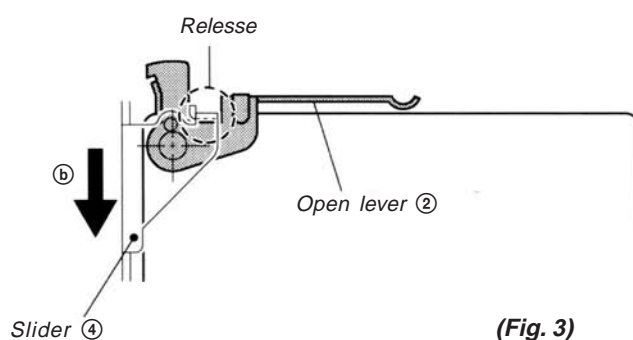
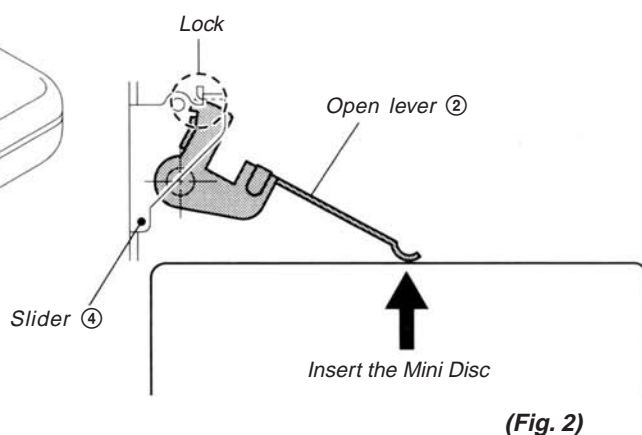
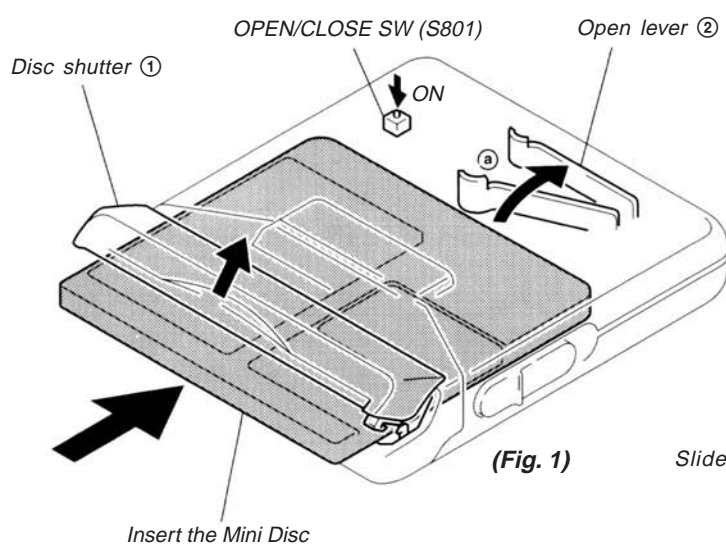
The disc shutter ① opens when a disc is loaded. (Fig. 1)

When a disc is loaded, the open lever ② moves in arrow direction ③ and the holder assembly ③ lock is released. (Fig. 1 to 3)

The slider ④ slides in arrow direction ⑤ and the holder assembly ③ moves down to the chassis assembly (below). (Fig. 4)

The OPEN/CLOSE SW (S801) is turned ON by the connection lever linked. (Fig. 1)

The wakeup mode is set and the power circuit starts operating.



## When removing the disc

When the open knob ① is slid in arrow direction ④ and the open slider ② lock is released, the disc shutter ③ opens. (Fig. 5)

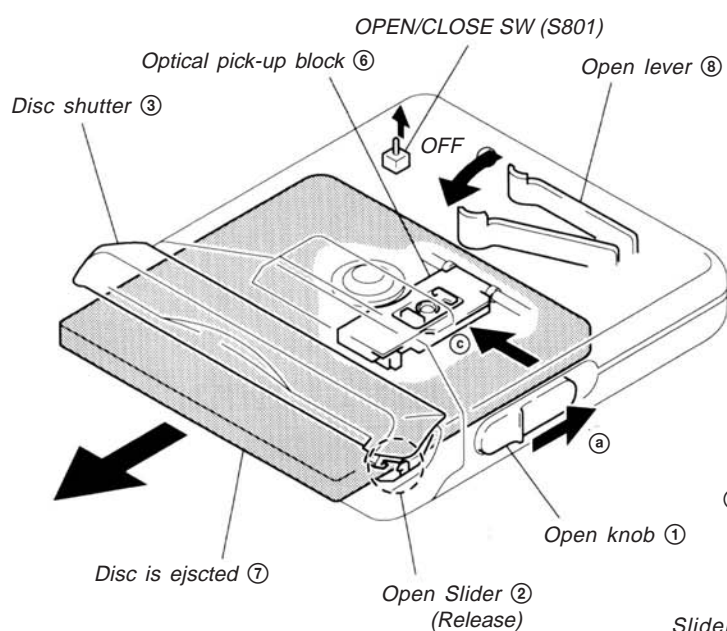
The slider ④ slides in arrow direction ⑤ and the holder assembly ⑥ moves up to the upper panel (above). (Fig. 6, Fig. 8)

The OPEN/CLOSE SW (S801) is turned OFF by the connection lever linked. (Fig. 5)

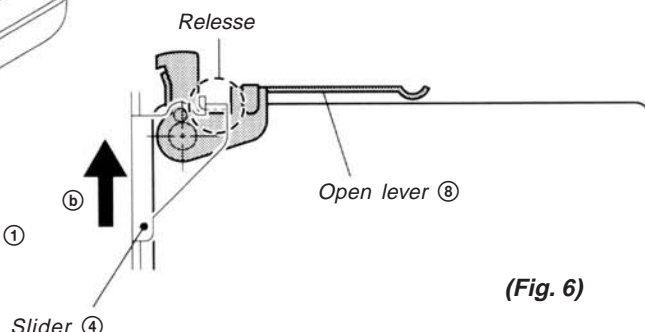
The optical pick-up block ⑥ moves to the inner circumference ⑦ (Fig. 5)

The disc ⑦ is pushed by the open lever ⑧ and ejected out from the holder assembly ⑥ (Fig. 7)

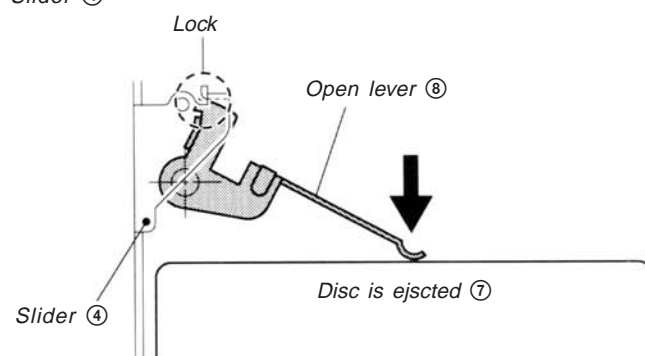
The sleep mode is set and the power supply stops.



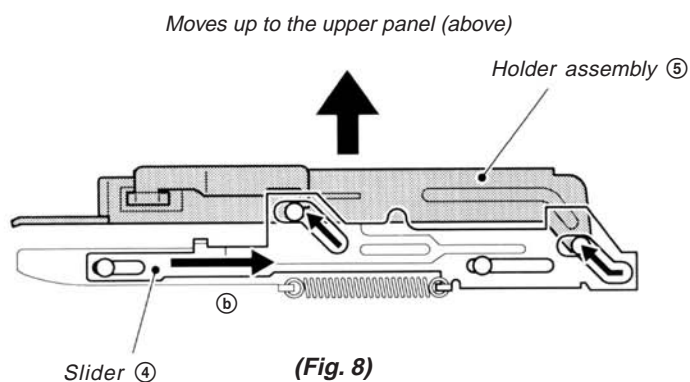
(Fig. 5)



(Fig. 6)



(Fig. 7)

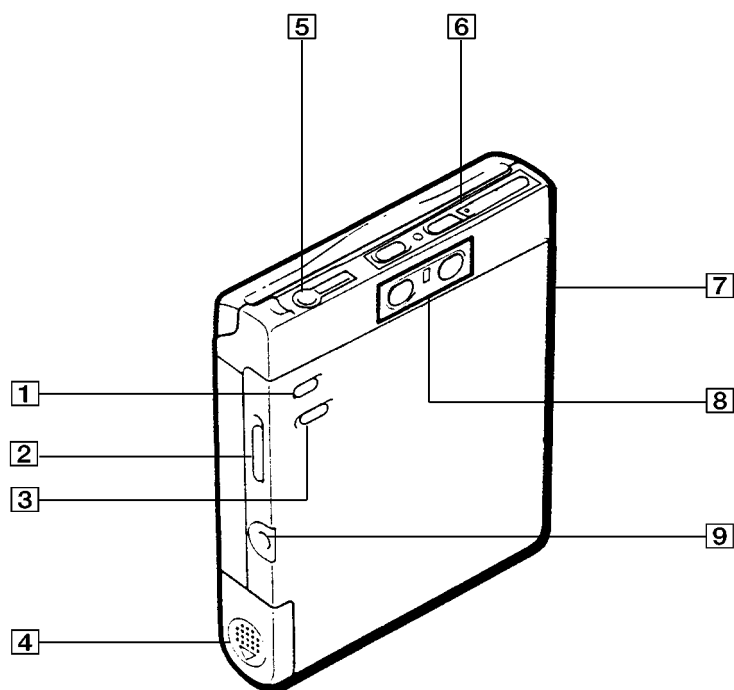


(Fig. 8)

## SECTION 2 GENERAL

### LOCATION AND FUNCTION OF CONTROLS

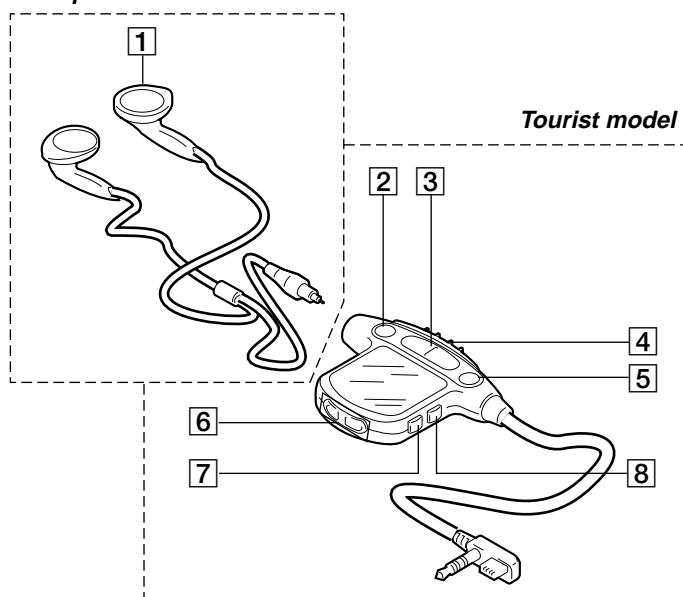
#### ● Main Unit



- 1 AVLS switch
- 2 HOLD switch
- 3 DIGITAL MEGA BASS switch
- 4 Battery compartment
- 5 REMOTE jack
- 6 MD operate buttons
  - (play) button
  - button
  - button
- 7 EJECT knob
- 8 VOLUME +, - buttons
- 9 DC IN 1.5V jack

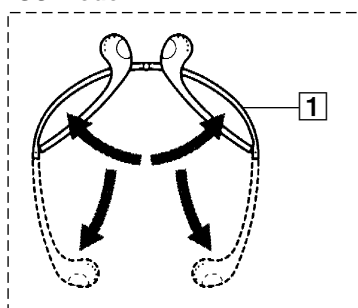
• Headphones with Remote Control

*Except US model*

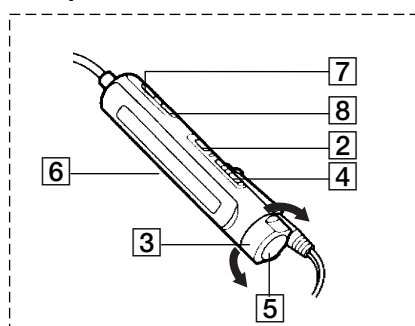


- 1 Headphones
- 2 || (pause) button
- 3 ►/►►◄◄ control
- 4 HOLD switch
- 5 ■ (stop) button
- 6 VOL +, – buttons
- 7 DISPLAY button
- 8 PLAYMODE button

*US model*



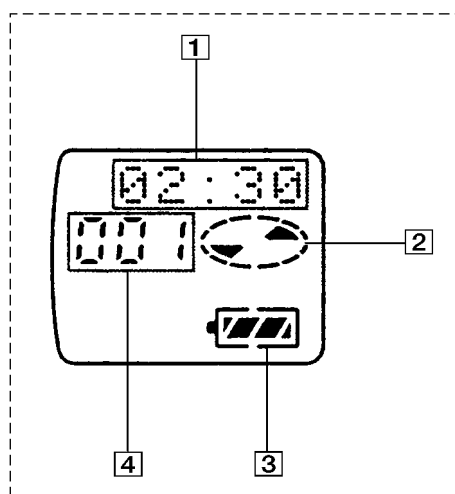
*Except Tourist model*



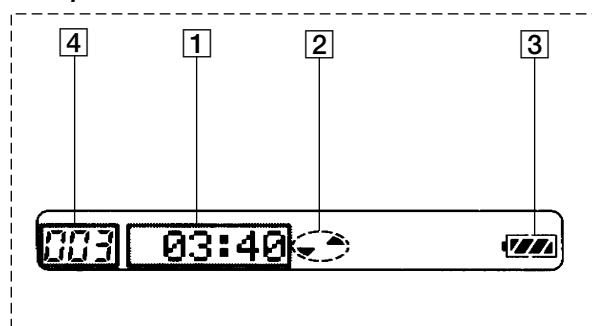
- 1 Headphones
- 2 || (pause) button
- 3 ►/►►◄◄ control
- 4 HOLD switch
- 5 ■ (stop) button
- 6 VOL +, – buttons
- 7 DISPLAY button
- 8 PLAYMODE button

• Display windows (Remote Control)

*Tourist model*



*Except Tourist model*



- 1 Character display
- 2 Disc revolve indicator
- 3 Battery condition indicator
- 4 Track number display



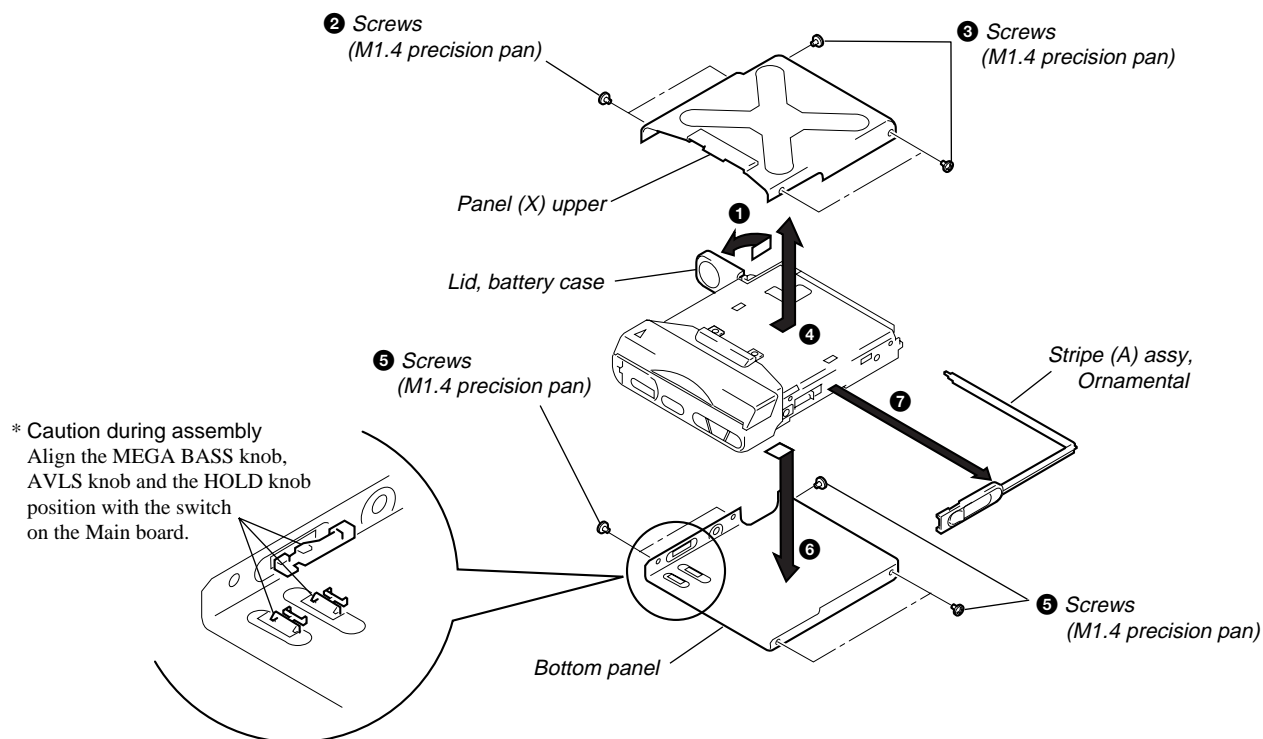
## SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

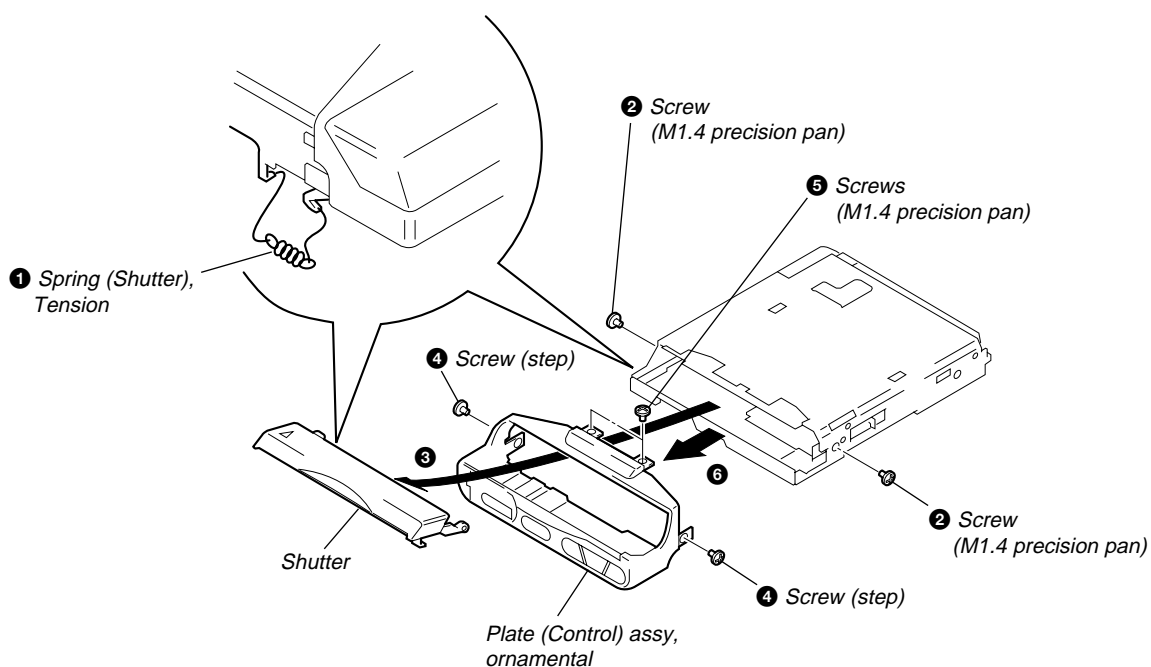
Set → Panel (X) upper, Bottom panel → Plate (Control) assy, ornamental → Main board  
 ↳ Mechanism deck → Optical pick-up

**Note :** Follow the disassembly procedure in the numerical order given.

### 3-1. PANEL (X) UPPER, BOTTOM PANEL REMOVAL

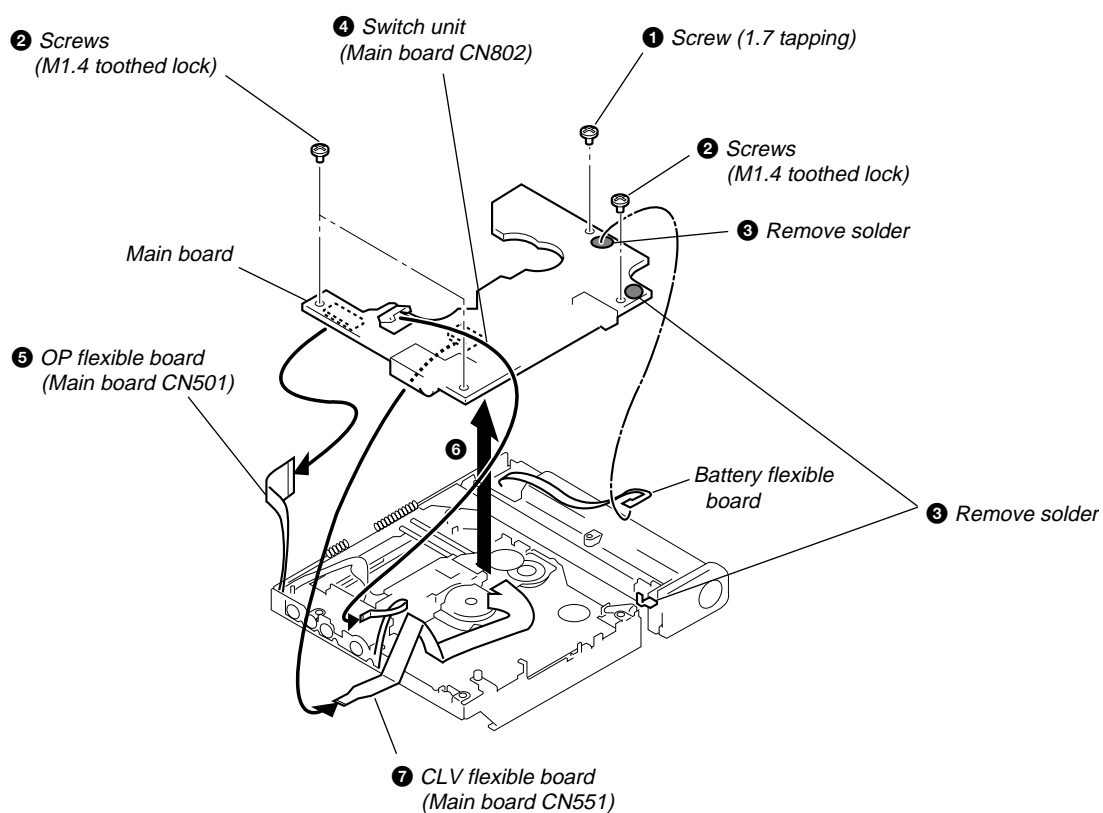


### 3-2. PLATE (CONTROL) ASSY, ORNAMENTAL REMOVAL

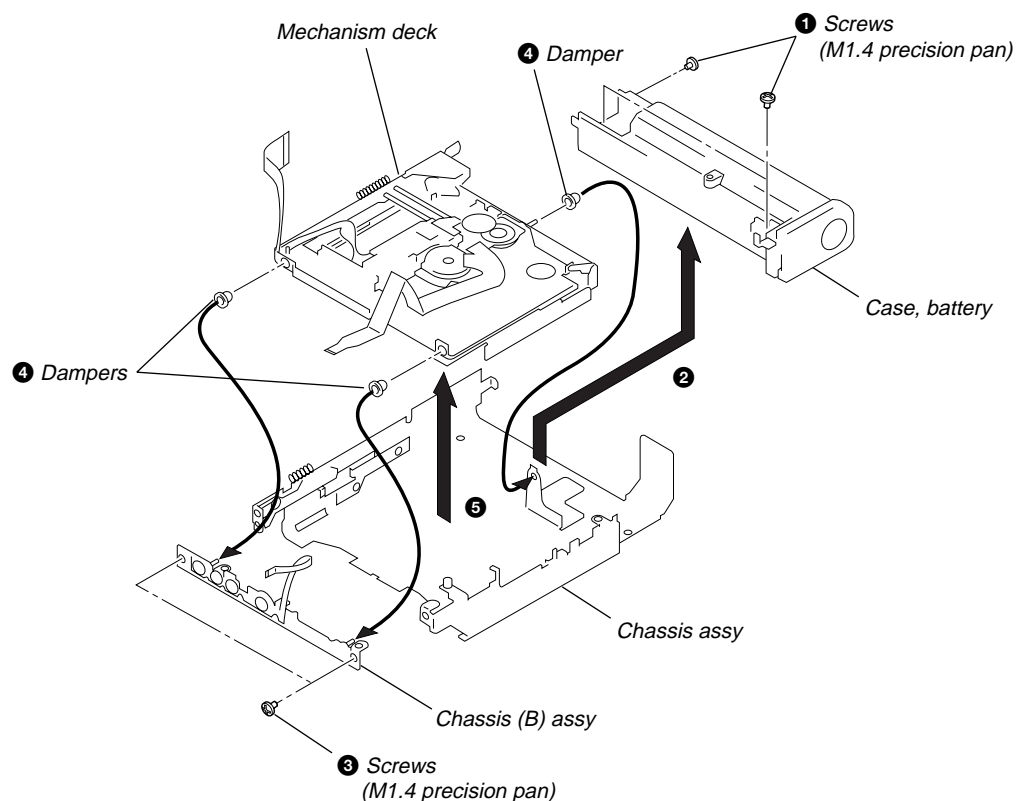




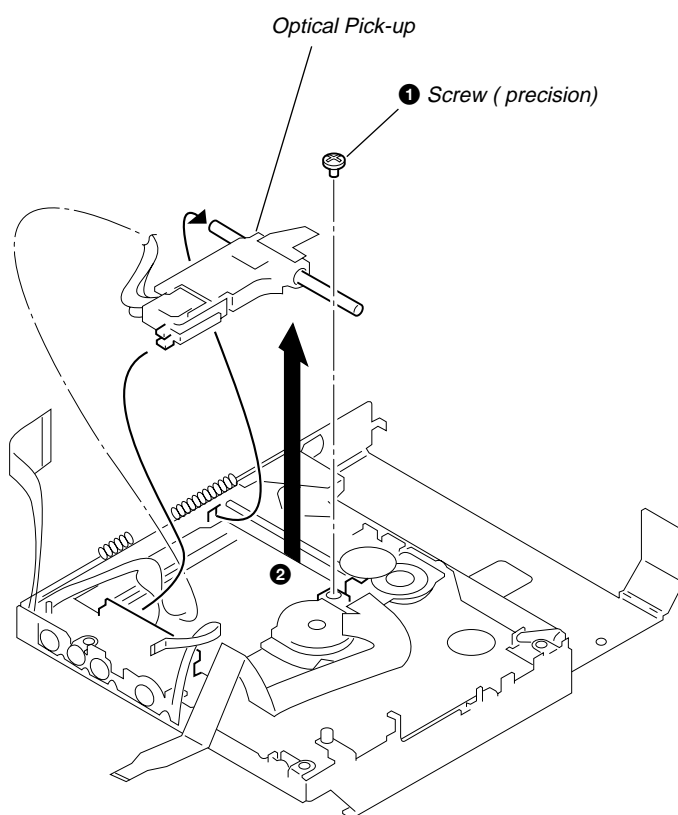
### 3-3. MAIN BOARD REMOVAL



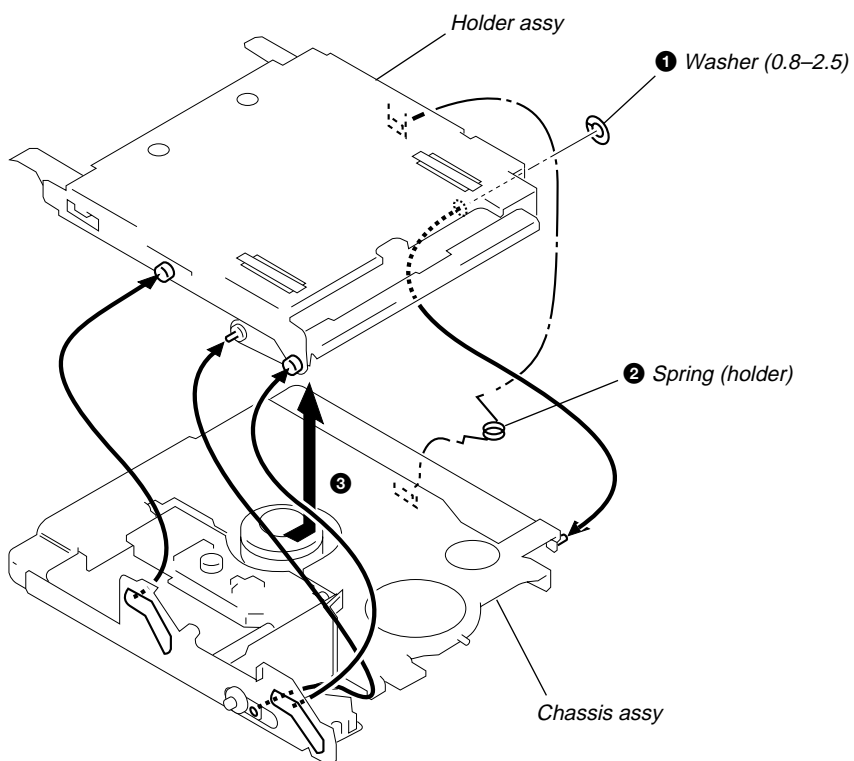
### 3-4. MECHANISM DECK REMOVAL



### 3-5. OPTICAL PICK-UP REMOVAL



### 3-6. HOLDER ASSY REMOVAL



## SECTION 4



### TEST MODE

## Outline

- In this set, overall adjustment mode is made available by entering test mode to perform automatic adjustment of CD and MO. In the overall adjustment mode, the disc is determined whether it is CD or MO and adjustments are performed in sequence. If a fault is found, the location of the fault is displayed. Also, in servo mode, each adjustment can be automatically made.

## Setting the Test Mode

To enter the test mode, two methods are available :

1. Entering method with key input.  
Turn on the HOLD switch on the set. While holding down the ■ key on the set, press the following remote commander keys in the following order :  
  

2. Entering method by shorting the test point  
Solder bridge the test point TAP801 (TEST) on the main board (connect IC801 pin ③2 to GND), and turn on the POWER.

**[MAIN BOARD]** (Conductor side)

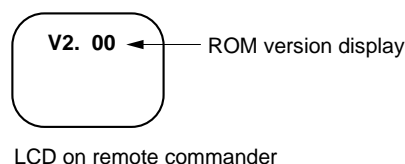
Test mode  
(Short : Test mode  
Open : Normal mode)

## Releasing the Test Mode

1. When test mode was entered with key input, turn off the POWER.
2. When test mode was entered by shorting the test point, turn off the POWER and open the solder bridge of TAP801 (TEST MODE) on the main board.

## Operation of Setting on Test Mode

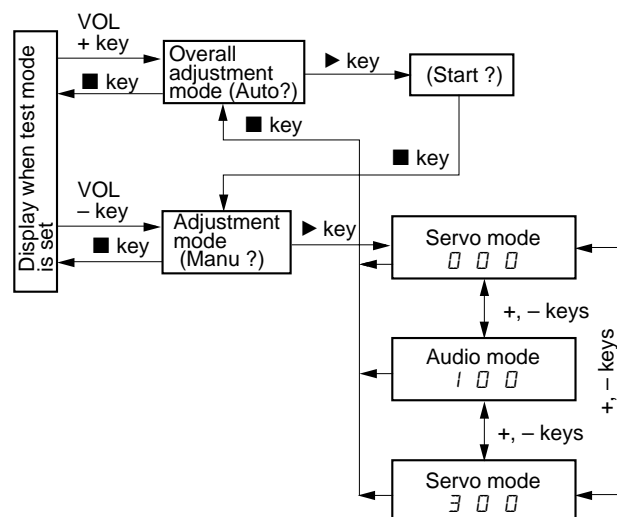
When the test mode is set, the LCD displays the following :



- ROM version display to all LEDs ON to all LEDs OFF and so on. These operations are repeated.
- When the PLAY MODE key is pressed and hold down, the display at that time is held so that display can be checked.




## Configuration of Test Mode

The test mode has the configuration given below.

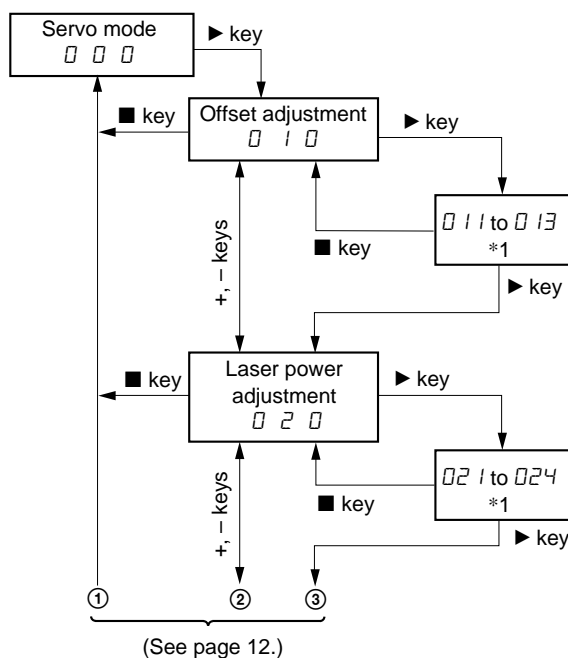


Displays of the LCD on the remote commander are shown in parentheses.

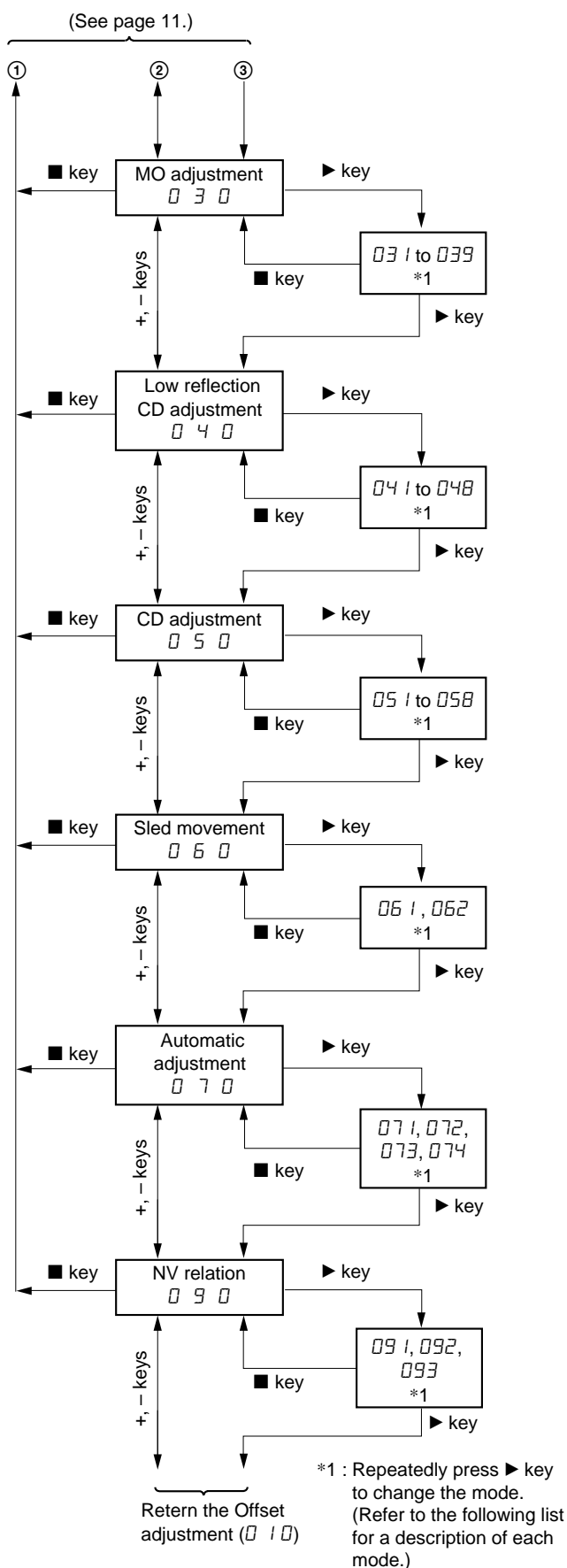
## Servo Mode

- Set the test mode, press the VOLUME – key and use the  key to set the servo mode.
- When the servo mode is set, use the  key and the  key to move the optical pick-up to the outer circumference and to the inner circumference respectively.
- When entering another mode, refer to the configuration of test mode.

- ### 1. Structure of Servo Mode



\*1 Repeatedly press ► key to change the mode.  
(Refer to the following list for a description of each mode.)



## 2. Description of Each Mode

### 010 Offset adjustment

Mode	Description
011	FE offset
012	TE offset
013	All servo ON

### 020 Laser power adjustment

Mode	Description
021	MO power A
022	MO power E
023	CDL power
024	CD power

### 030 MO adjustment

Mode	Description
031	MO EF balance
032	MO EF gain
033	MO ABCD gain
034	MO focus gain
035	MO tracking gain
036	MO RF gain
037	MO ADIP gain
038	MO focus bias E
039	CD focus bias A

### 040 Lower reflection CD adjustment

Mode	Description
041	Lower reflection CD EF balance
042	Lower reflection CD EF gain
043	Lower reflection CD ABCD gain
044	Lower reflection CD focus gain
045	Lower reflection CD tracking gain
046	Lower reflection CD RF offset
047	Lower reflection CD RF gain
048	Lower reflection CD focus bias

### 050 CD adjustment

Mode	Description
051	CD EF balance
052	CD EF gain
053	CD ABCD gain
054	CD focus gain
055	CD tracking gain
056	CD RF offset
057	CD RF gain
058	CD focus bias

### 06 Seld movement

Mode	Description
061	Seld in
062	Seld out 5

### 07 Automatic adjustment

Mode	Description
071	Focus search
072	Access 32
073	ADER check
074	Tracking sensitivity adjust

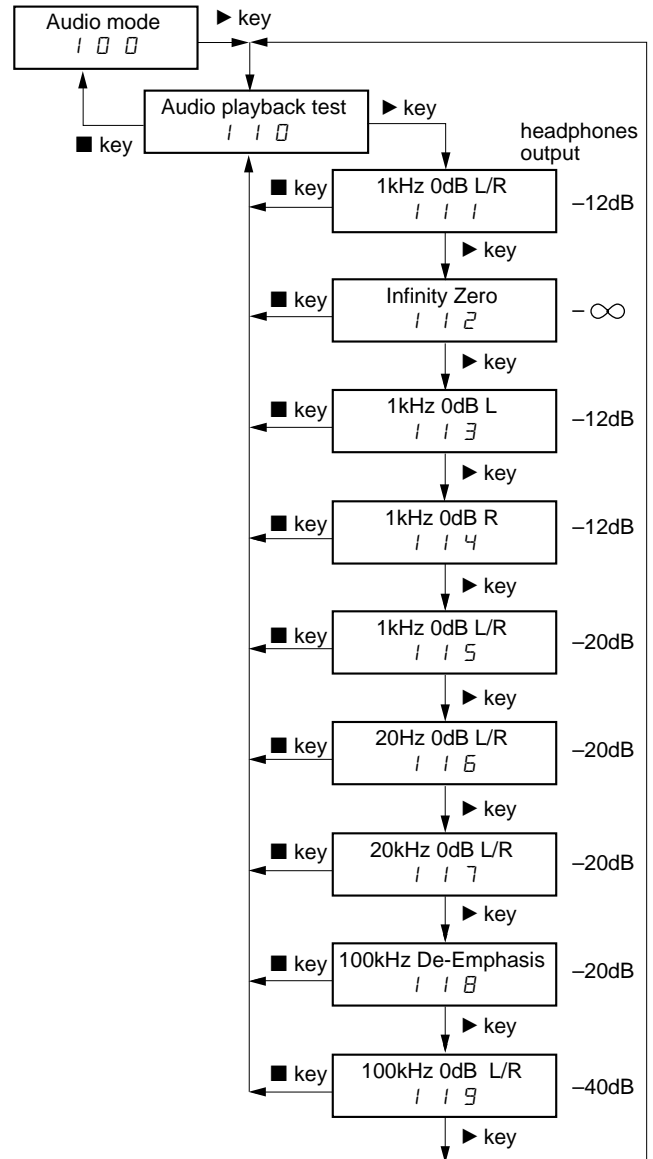
### 09 NV relation

Mode	Description
091	NV clear
092	Power OFF
093	Function code change

### Audio Mode

- Enter the test mode and press the VOLUME – key. Then, press the ► key and the VOLUME + key in this turn to enter audio mode.
- When entering another mode, refer to the configuration of test mode.

#### 1. Structure of Audio Mode



- The mode No. 111 is for S/N and crosstalk. The mode No. 115 is for distortion factor and frequency characteristics.
- When the VOLUME +/- keys is pressed in any mode, the volume of the headphones is changed (increased/decreased) in units of one step. When the ►◄◄◄ key is pressed, the volume of the headphones is maximized/minimized.
- For the volume value, any changed value remains as it is basically. However, when the volume is switched from 114 to 115 or 118 to 119, it returns the default value.

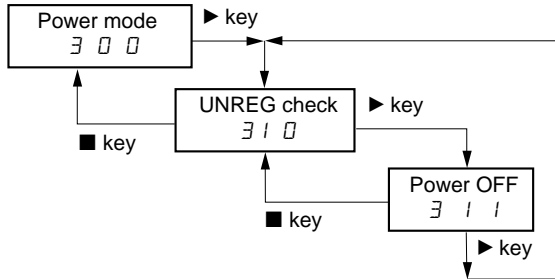
## SECTION 5

### ELECTRICAL ADJUSTMENTS

#### Power Mode

- Enter the test mode and press the VOLUME – key. Then, press the ► key and the VOLUME – key in this turn to enter power mode.
- When entering another mode, refer to the configuration of test mode.

##### 1. Structure of Power Mode

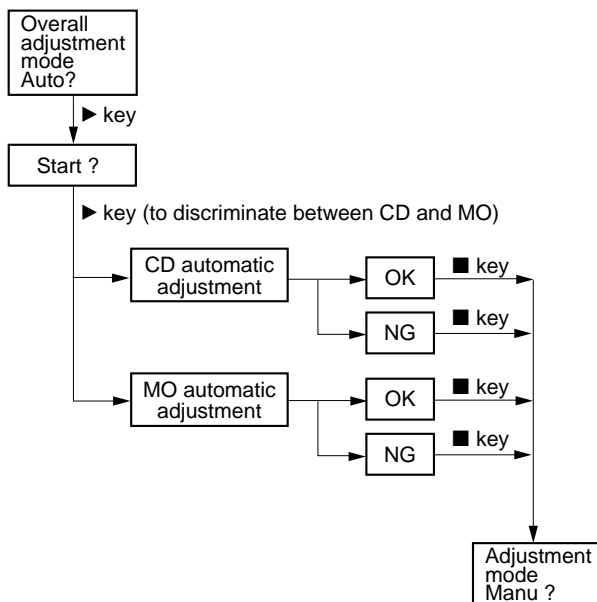


#### Overall Adjustment Mode

- Enter the test mode and press the VOLUME + key to enter overall adjustment mode.
- When entering another mode, refer to the configuration of test mode.
- When the overall adjustment mode is entered, the LCD on the remote commander display the following :

Auto ?  
000

##### 1. Structure of Overall Adjustment Mode



#### Notes for Adjustment

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode.
- Adjustments are performed in the overall adjustment mode. If an item is determined as NG, the item is readjusted in servo mode.

#### Adjustment Method in Overall Adjustment Mode

- Enter the test mode and press the VOLUME + key to enter overall adjustment mode.
- Insert the CD test disc (TGYS-1) or SONY MO disc (recorded) commercially available.
- Press the ► key twice. The disc is determined whether it is CD or MO and each adjustment mode is set. Automatic adjustments are performed in the order of the items listed below.

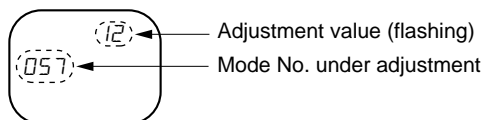
- In CD Automatic adjustment Mode

No.	Mode	Description
1	06 1	Sled in
2	07 1	Focus search
3	06 2	Sled out 5
4	05 1	CD EF balance
5	05 2	CD EF gain
6	05 1	CD EF balance
7	05 3	CD ABCD gain
8	05 4	CD focus gain
9	05 5	CD tracking gain
10	05 6	CD RF offset
11	05 7	CD RF gain
12	05 6	CD RF offset
13	05 8	CD Focus bias

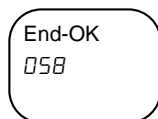
- In MO Automatic adjustment Mode

No.	Mode	Description
1	06 1	Sled in
2	07 1	Focus search
3	06 2	Sled out
4	03 1	MO EF balance
5	03 2	MO EF gain
6	03 1	MO EF balance
7	03 3	MO ABCD gain
8	03 4	MO focus gain
9	03 5	MO tracking gain
10	03 6	MO RF gain
11	03 7	MO ADIP gain
12	03 8	MO focus bias E
13	03 9	MO focus bias A
14	07 3	ADER check
15	06 1	Sled in
16	07 1	Focus search
17	04 1	Low reflection CD EF balance
18	04 2	Low reflection CD EF gain
19	04 1	Low reflection CD EF balance
20	04 3	Low reflection CD ABCD gain
21	04 4	Low reflection CD focus gain
22	04 5	Low reflection CD tracking gain
23	04 6	Low reflection CD RF offset
24	04 7	Low reflection CD RF gain

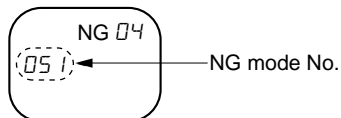
- \* Remote commander display during automatic adjustment



4. If result of automatic adjustment is OK, the following display appears.



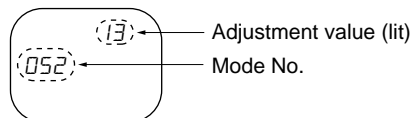
5. If result of automatic adjustment is NG, the following display appears.



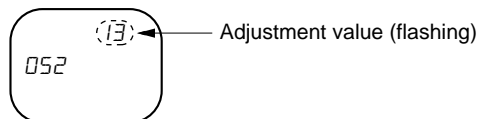
- \* If NG, enter servo mode to perform automatic adjustment of the item determined as NG.

## Adjustment in Servo Mode Method

1. When each adjustment mode is set according to the structure of servo mode, the lower two digits of the mode No. and the adjustment value written in EEPROM are displayed and lit on the LCD on the remote commander.

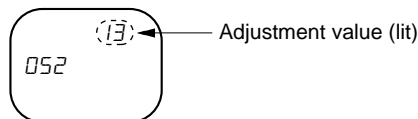


2. When the **III** key is pressed, the following display appears and the automatic adjustment is performed.



- Note)** Although the VOLUME +/- keys can be used to change the adjustment value to any value, they should not be used whenever possible.

3. When the automatic adjustment is completed, the flashing adjustment value is lit.





## SECTION 6

### DIAGRAMS

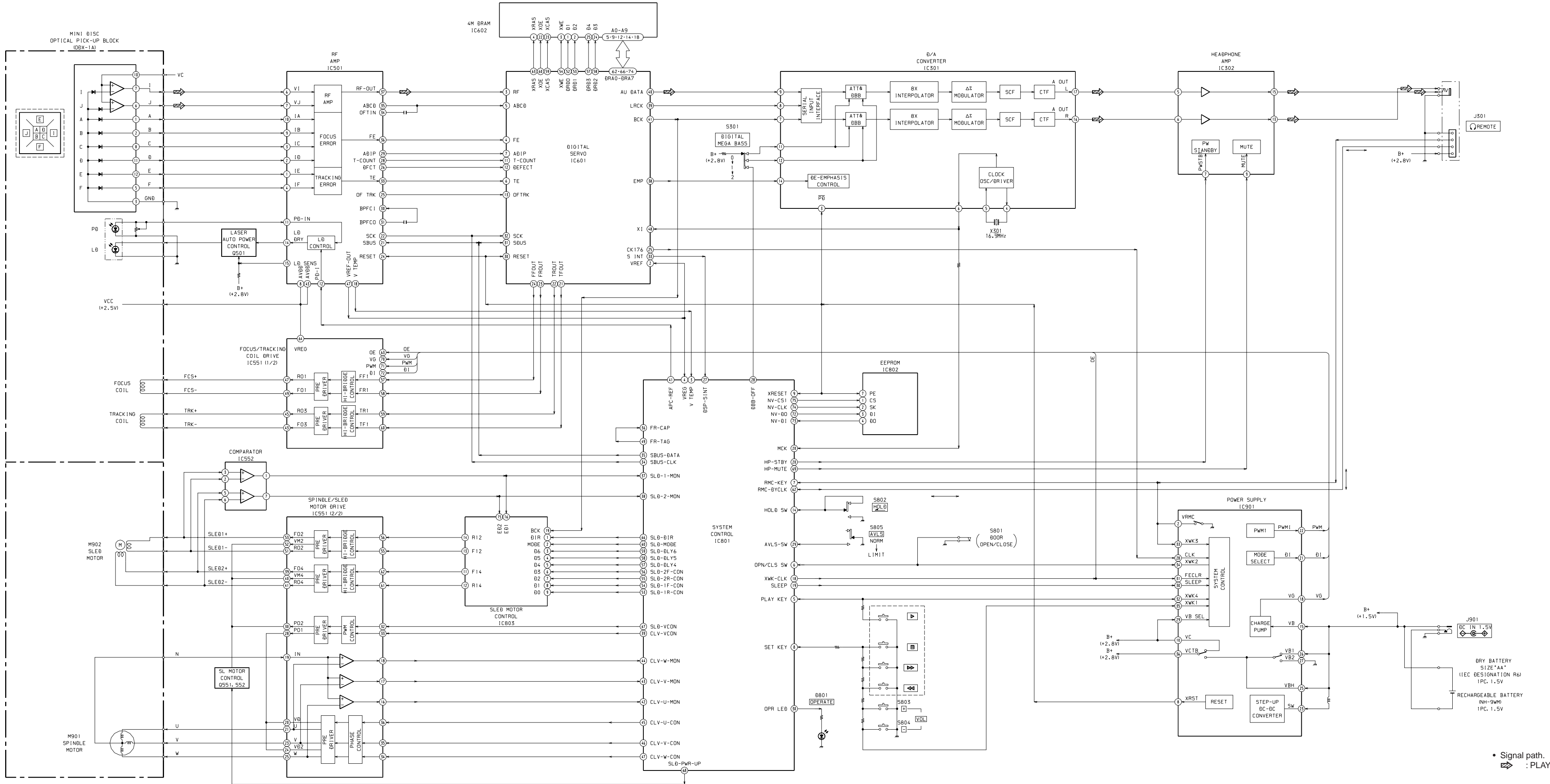
#### 6-1. IC PIN DESCRIPTION

##### IC801 RU6715MF-0004 (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Pin Description
1	CHG MON	–	Not used (Fixed at “L” ).
2	UREG MON	I	Unreg voltage monitor input.
3	VTEMP	I	Temperature sensor input.
4	VREF	I	Reference voltage monitor input.
5	PLAY KEY	I	Set PLAY key input.
6	OPEN/CLS SW	I	OPEN/CLOSE switch input.
7	RMC KEY	I	Remote commander key input.
8	SET KEY	I	Set key input.
9	XRESET	I	System reset input (At reset : “L” ).
10	AVDD	–	A/D converter power supply.
11	AVSS	–	A/D converter GND.
12	TYPE 0	I	(Fixed at “L” ).
13	TYPE 1	I	(Fixed at “L” ).
14	HOLD SW	I	Set HOLD switch input.
15	MODEL	I	(Fixed at “L” ).
16	TYPE 2	I	(Fixed at “L” ).
17	VREG CON	O	2.5V voltage on/off switch.
18	XWK CLR	O	Power IC wakeup factor latch clear output and motor driver IC control signal output.
19	SLEEP	O	System sleep output.
20	MCK	I	Master clock input.
21	NC	–	Not used (Open).
22	VDD	–	Digital power supply.
23	VSS	–	Digital Ground.
24	NC	–	Not used (Open).
25	VSS	–	Digital Ground.
26	UREG CHK CON	O	Not used (Open).
27	DSP SINT	I	Interrupt input from DSP.
28	DBB OFF	I	DBB switch.
29	AVLS SW	I	Set AVLS switch input.
30	OPR LED	O	LED drive.
31	NC	–	Not used (Open).
32	ADJUST	I	“Normally, Test mode select input (“L” : Test mode)
33	NC	–	Not used (Open).
34	SBUS CLK	O	SBB serial clock output.
35	SBUS DATA	O	SBB serial data output.
36	FR CAP	I	Free-run counter capture input (Not used).
37	SLD 1 MON	I	Sled servo timing signal input.
38	SLD 2 MON	I	Sled servo timing signal input.
39	CLV VCON	O	Spindle servo drive voltage control output.
40	V28-CON	O	Power voltage correction control output.
41	APC REF	O	Laser power control output.
42	CLV U MON	I	Spindle servo timing signal input.
43	CLV V MON	I	Spindle servo timing signal input.
44	CLV W MON	I	Spindle servo timing signal input.
45	CLV U CON	O	Spindle servo drive signal output.

Pin No.	Pin Name	I/O	Pin Description
46	CLV V CON	O	Spindle servo drive signal output.
47	CLV W CON	O	Spindle servo drive signal output.
48	NC	–	Not used (Open).
49	FR TRG	–	Free-run counter capture output (Not used).
50	VDD	–	Digital power supply.
51	VPP	–	Power for on board light.
52	VSS	–	Digital ground.
53	SLD 1R CON	O	Gate array control signal output.
54	SLD 1F CON	O	Gate array control signal output.
55	SLD 2R CON	O	Gate array control signal output.
56	SLD 2F CON	O	Gate array control signal output.
57	SLD DLY4	O	Gate array control signal output.
58	SLD DLY5	O	Gate array control signal output.
59	SLD DLY6	O	Gate array control signal output.
60	SLD MODE	O	Gate array control signal output.
61	SPCK	–	Not used (Open).
62	RMC DTCLK	I/O	TSB serial data input/output.
63 – 65	NC	–	Not used (Open).
66	SLD DIR	O	Gate array control output.
67	SLD VCON	O	Sled servo outer voltage control output.
68	SLD PWR-UP	O	Baypass transistor control output for sled drive power supply.
69	HP MUTE	O	Headphone amplifier mute output.
70	HP STBY	O	Headphone amplifier standby output.
71	RMC SEL	O	Not used (Open).
72	NV D0	O	Serial data signal output for NVRAM.
73	NV D1	I	Serial data signal input from NVRAM.
74	NV CLK	O	Serial clock signal output for NVRAM.
75	NV CS1	O	Chip select signal output for NVRAM.
76	VDD	–	Digital power supply.
77 – 79	LCD VL2 – 0	I	LCD drive level power supply (Ground).
80	VSS	–	Digital ground.
81 – 87	NC	–	Not used (Open).
88 – 96	LCD SEG0 – 8	–	Not used (Open).
97 – 100	LCD COM0 – 3	–	Not used (Open).

6-2. BLOCK DIAGRAM



• Signal path.  
- - - : PLAY



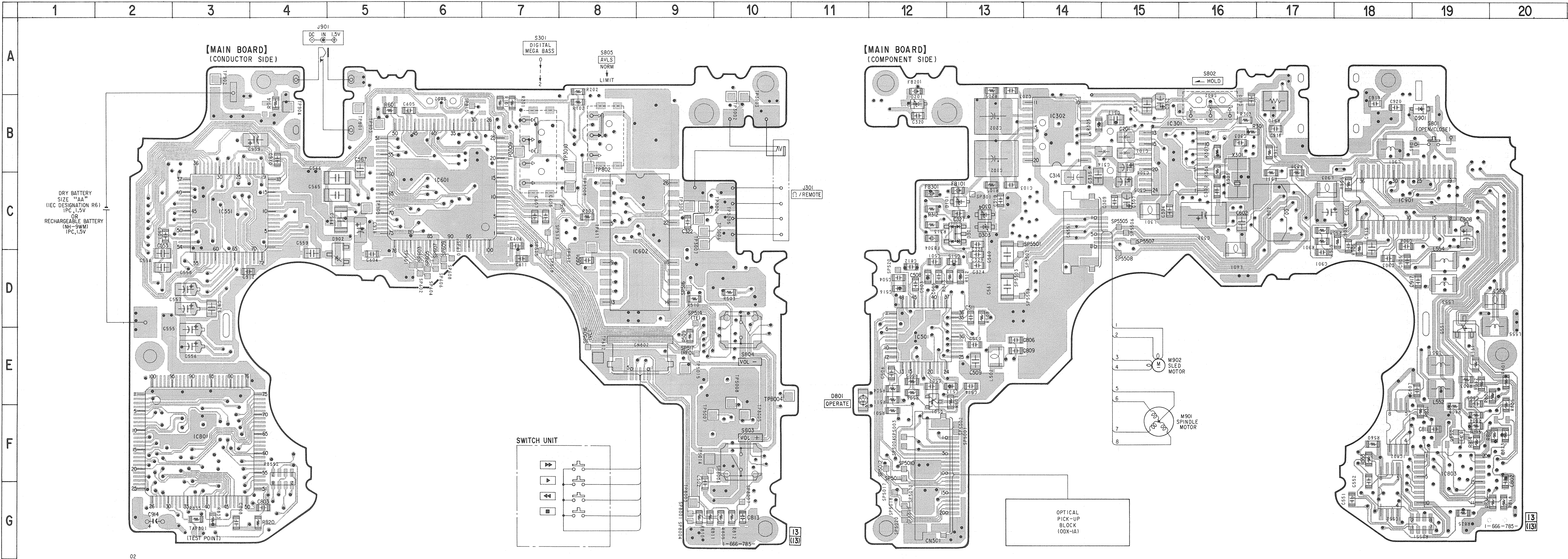
6-3. PRINTED WIRING BOARD

● SEMICONDUCTOR LOCATION

Ref. No.	Location
D101	C-13
D201	B-12
D301	C-13
D303	C-13
D304	C-13
D801	E-11
D901	B-18
D902	C-5
IC301	B-15
IC302	B-14
IC501	E-12
IC551	C-3
IC552	G-18
IC601	C-6
IC602	C-8
IC801	F-3
IC802	F-18
IC803	F-19
IC901	C-18
Q501	E-12
Q551	D-19
Q552	F-19

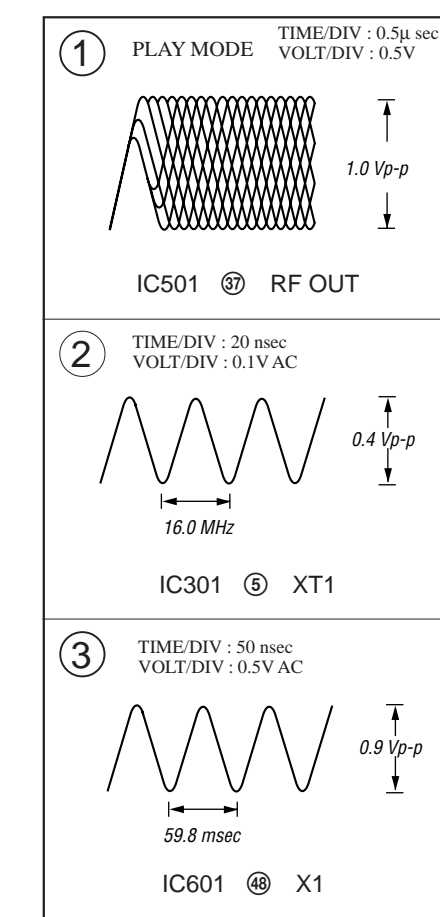
Note:  
● : parts extracted from the component side.  
● : Through hole.  
● : Pattern from the side which enables seeing.  
(The other layers' patterns are not indicated.)

Caution:  
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.  
Parts face side: Parts on the parts face side seen from the parts face are indicated.










- Refer to page 29 for IC Block Diagrams.



- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{mF}$   
50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{ W}$  or less unless otherwise specified.

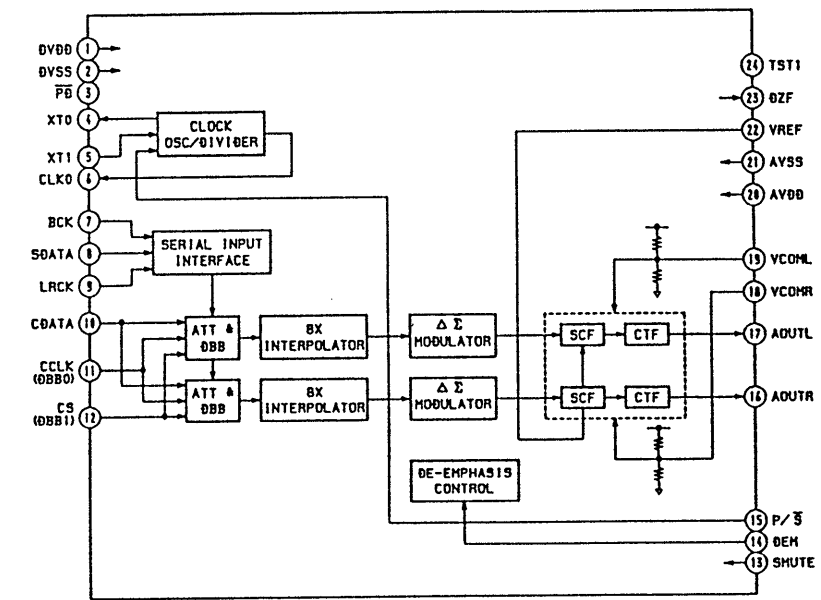
<p>The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

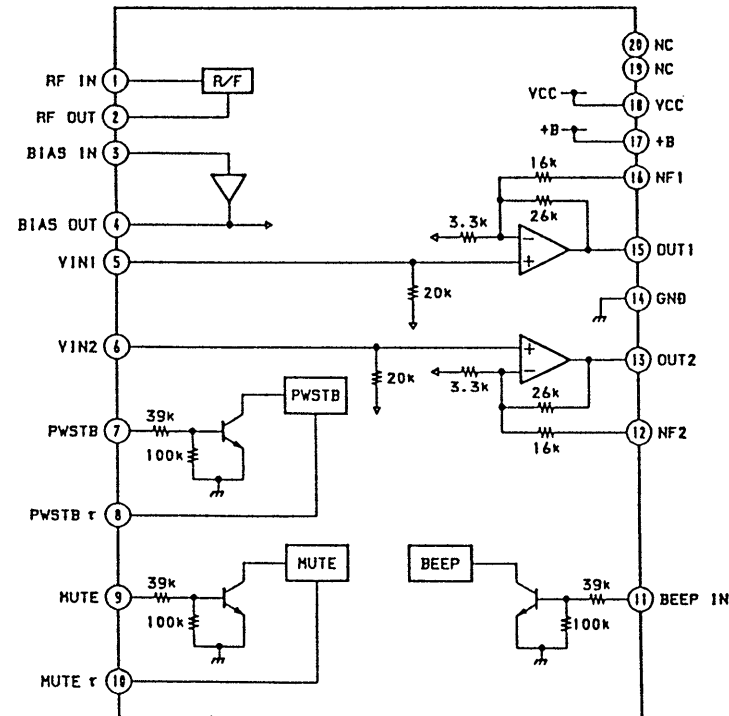
- **B +** : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from external power voltage jack. (J901)
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ).  
Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope.  
Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
-  : PLAY

## ● IC BLOCK DIAGRAMS

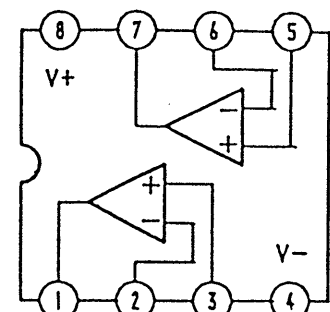
IC301 AK4314-VF-E2



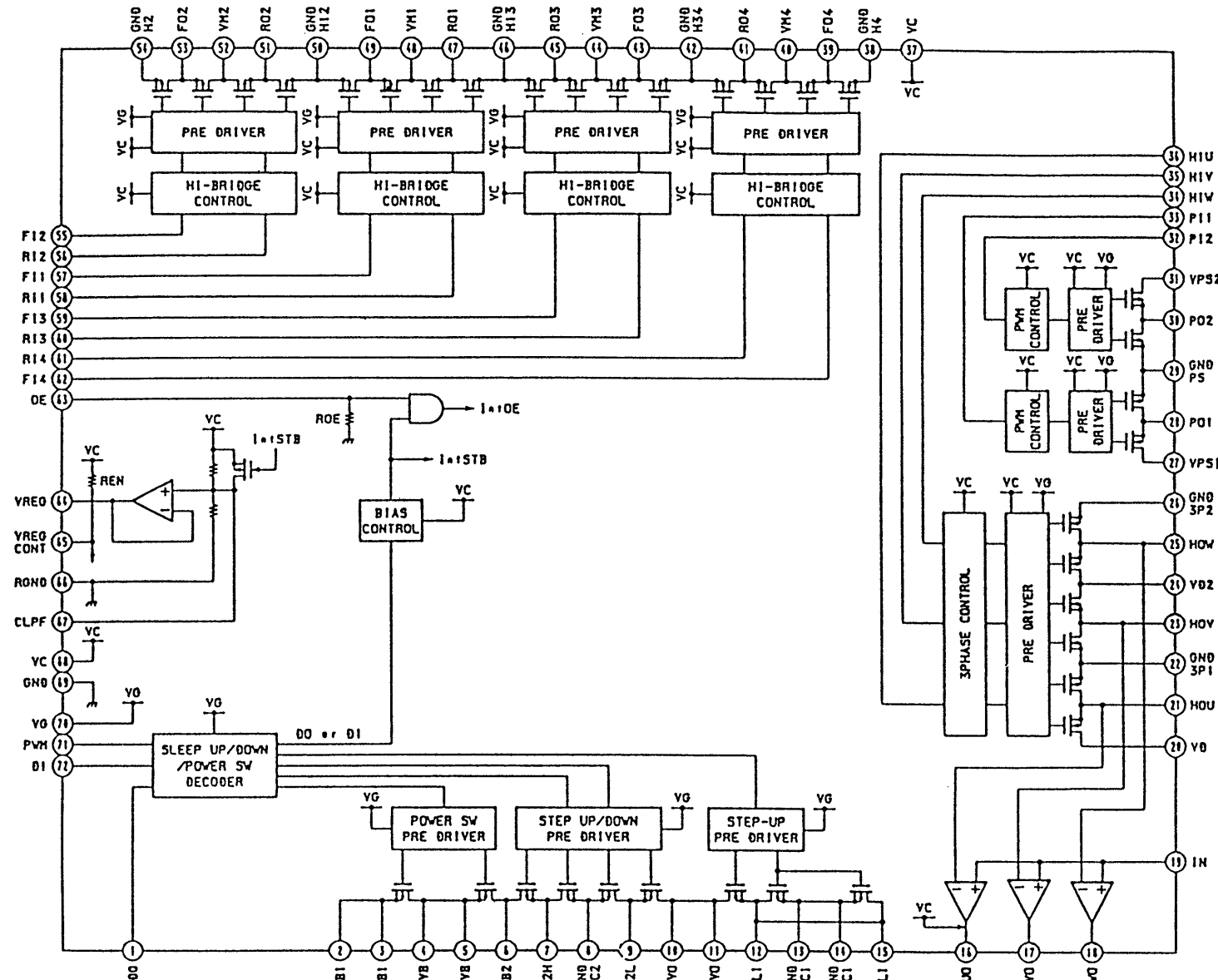
IC302 BA3577FS-E2



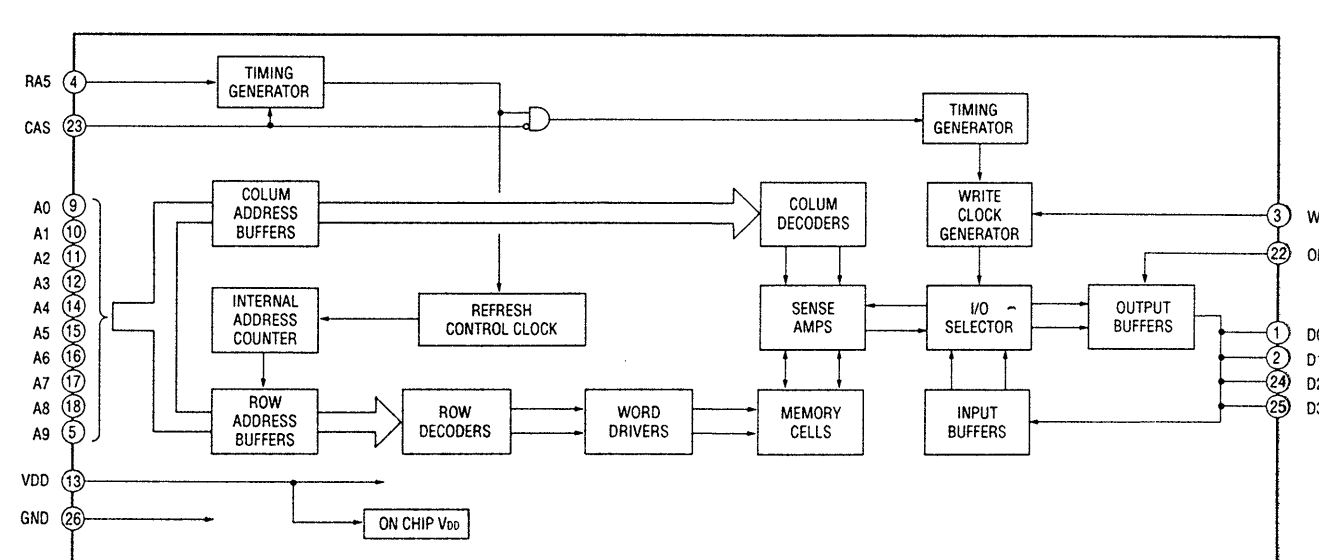
IC552 TLC372CPW-E20



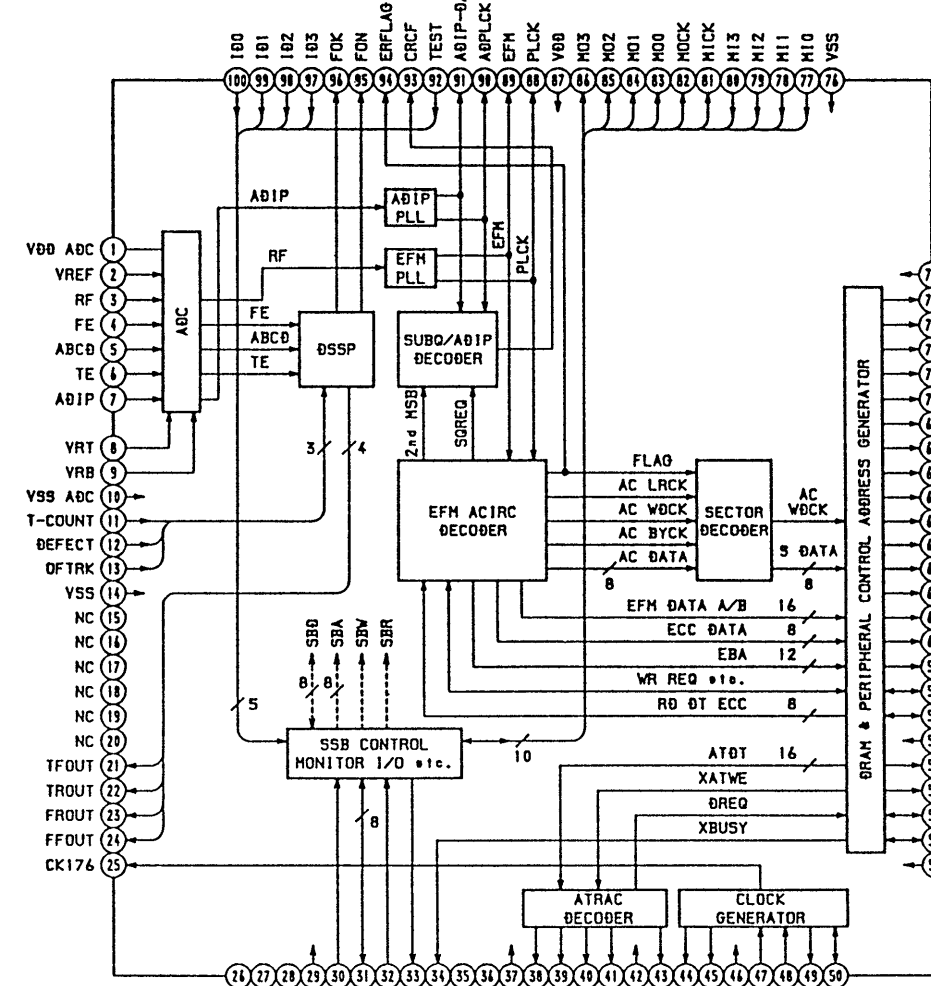
IC551 MPC17A55FTA



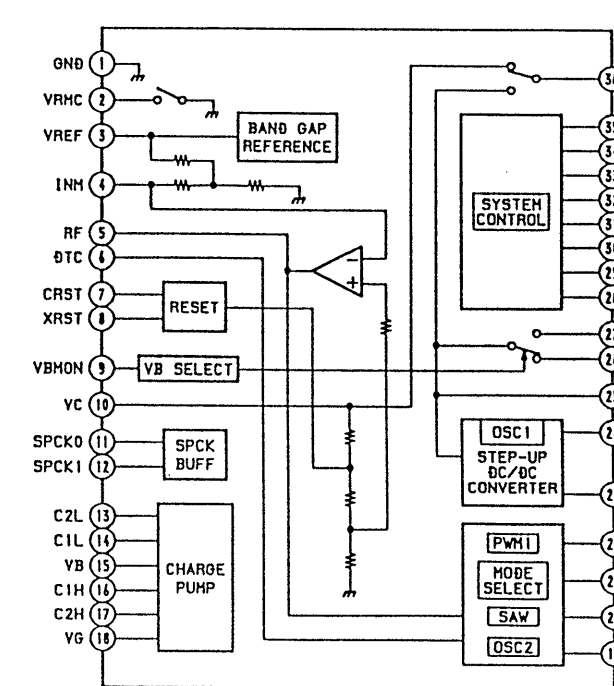
IC602 MSM51V4400-70TS-K



IC601 UPD63730GC-9EU



IC901 MPC1830VMEL

SECTION 7  
EXPLODED VIEWS

## NOTE :

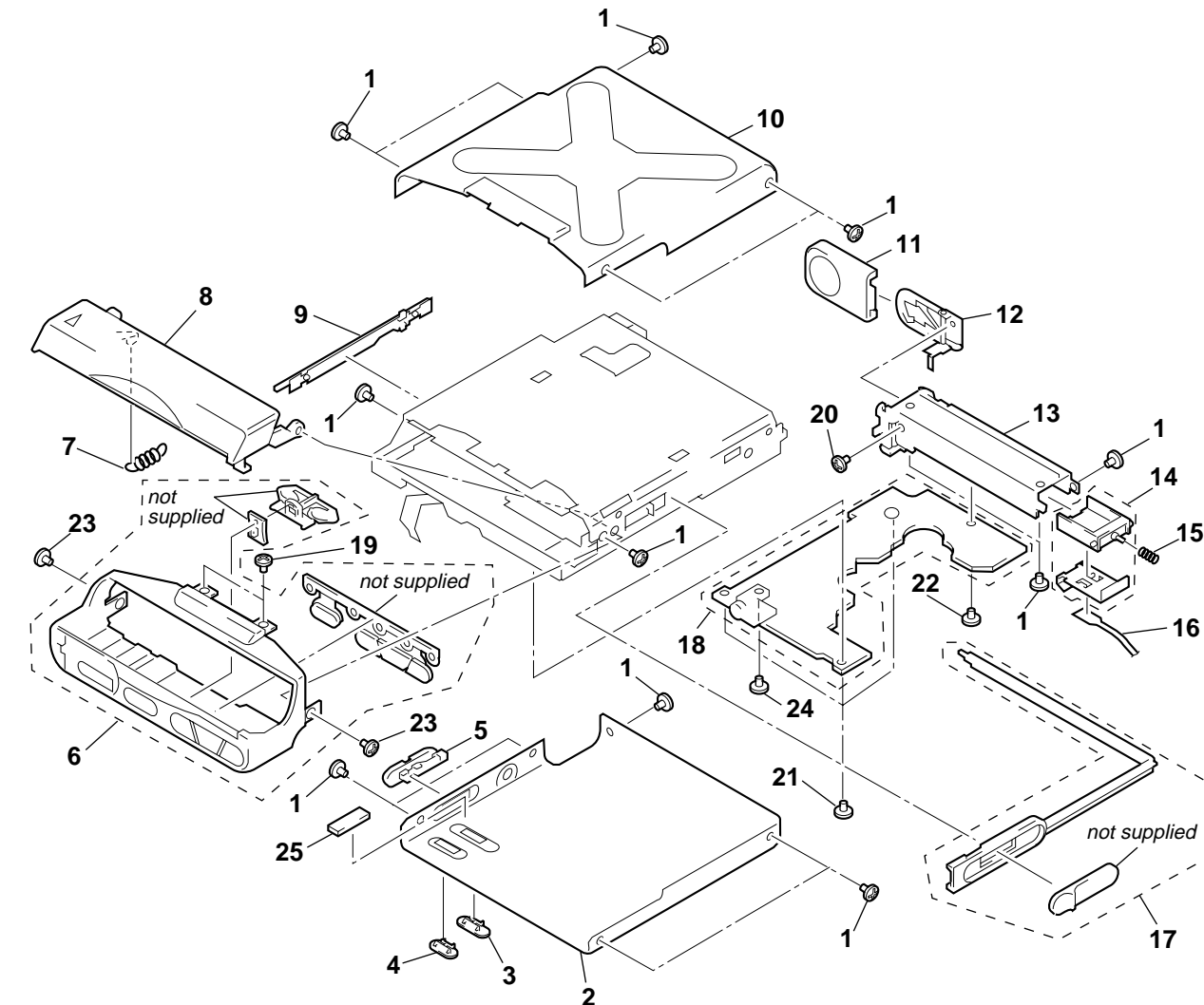
- XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation  
JE : Tourist

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

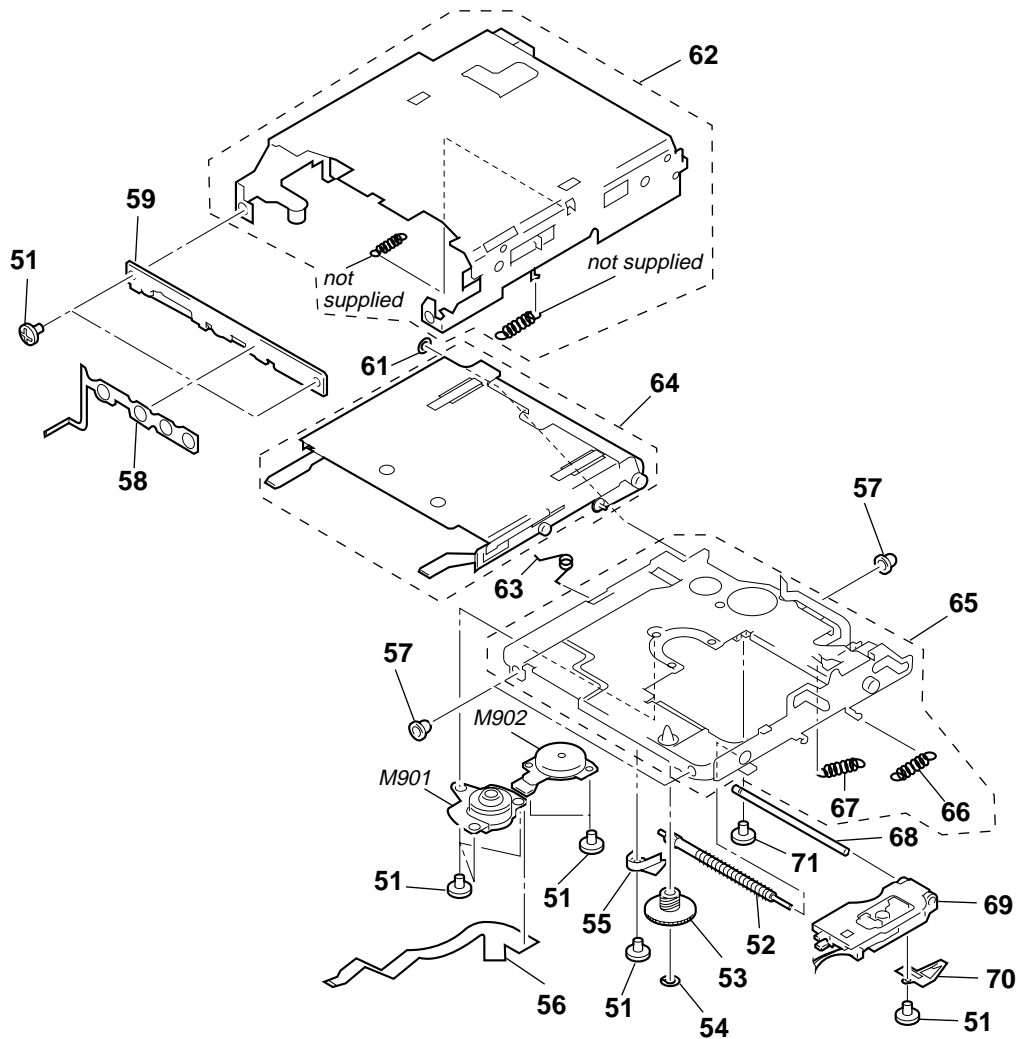
## 7-1. PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-963-883-21	SCREW (M1.4), PRECISION PAN		15	4-993-389-01	SPRING (BATTERY), COMPRESSION	
2	4-993-374-11	PANEL, BOTTOM		16	1-666-783-11	FLEXIBLE BOARD	
3	4-982-398-21	KNOB (BASS BOOST)		17	X-4948-818-1	STRIP (A) ASSY, ORNAMENTAL	
4	4-982-397-21	KNOB (AVLS)		18	A-3293-628-A	MAIN BOARD, COMPLETE (JE)	
5	4-986-207-21	KNOB (TUN)		19	A-3293-828-A	MAIN BOARD, COMPLETE (EXCEPT JE)	
6	X-4948-817-1	PLATE (CONTROL) ASSY, ORNAMENTAL			7-627-455-07	SCREW +K1.4X1.4, PRECISION	
7	4-993-386-01	SPRING (SHUTTER), TENSION		20	4-963-883-41	SCREW (M1.4), PRECISION PAN	
8	4-993-384-01	SHUTTER		21	3-335-797-91	SCREW (M1.4), TOOTHED LOCK	
9	4-993-387-01	STRIP (B), ORNAMENTAL		22	4-984-017-11	SCREW (1.7), TAPPING	
10	4-993-413-01	PANEL (X), UPPER		23	4-993-385-01	SCREW, STEP	
11	4-993-392-02	LID, BATTERY CASE		24	3-338-625-11	SCREW (M1.4X1.6), WASHER HEAD	
12	X-4948-821-1	TERMINAL BOARD ASSY, MINUS					
13	4-993-415-01	CASE, BATTERY		25	3-350-775-01	SPACER	
14	X-4948-820-1	TERMINAL BOARD ASSY, PLUS					



7-2. MECHANISM DECK SECTION  
(MT-MZEP10-129)



The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--	--

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	4-963-883-21	SCREW (M1.4), PRECISION PAN		64	X-4948-792-1	HOLDER ASSY	
52	X-4948-793-1	LEAD ASSY		* 65	X-4948-790-1	CHASSIS ASSY	
53	4-982-555-01	GEAR (A)		66	4-993-253-01	SPRING (SLIDE), TENSION	
54	4-965-893-01	WASHER, GEAR (A) STOPPER		67	4-993-252-01	SPRING (EJECT), TENSION	
55	4-982-563-01	SPRING, THRUST		68	4-993-251-01	SHAFT, MAIN	
56	1-666-784-11	FLEXIBLE BOARD (CLV)		$\triangle$ 69	X-4949-080-1	OPTICAL PICK-UP ASSY (ODX-1A)	
57	4-993-388-01	DAMPER		70	4-982-561-11	SPRING, RACK	
58	1-475-297-11	SWITCH UNIT		71	3-349-825-82	SCREW, PRECISION	
* 59	X-4948-822-1	CHASSIS (B) ASSY, SET		M901	8-835-594-01	MOTOR, DC SSM-01C03A/J-S (SPINDLE)	
61	3-338-645-41	WASHER (0.8-2.5)		M902	1-698-764-11	MOTOR, SLED (SLED)	
62	X-4948-816-1	CHASSIS ASSY, SET					
63	4-900-951-01	SPRING (HOLDER)					

## MAIN

SECTION 8  
ELECTRICAL PARTS LIST

## NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms  
METAL : Metal-film resistor  
METAL OXIDE : Metal oxide-film resistor  
F : nonflammable
- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example :  
uA..... :  $\mu$  A....., uPA..... :  $\mu$  PA.....  
uPB..... :  $\mu$  PB....., uPC..... :  $\mu$  PC.....  
uPD..... :  $\mu$  PD.....
- CAPACITORS  
uF :  $\mu$  F
- COILS  
uH :  $\mu$  H
- Abbreviation  
FR : French  
JE : Tourist

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.





Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-3293-628-A	MAIN BOARD, COMPLETE (JE)		C510	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
	A-3293-828-A	MAIN BOARD, COMPLETE (EXCEPT JE)		C511	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
	*****			C513	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
				C514	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
*	4-993-391-01	RETAINER (DC)		C515	1-162-908-11	CERAMIC CHIP 3PF 0.25PF 50V	
		< CAPACITOR >		C516	1-162-910-11	CERAMIC CHIP 5PF 0.25PF 50V	
C101	1-107-812-11	TANTAL. CHIP 4.7uF 20%	6.3V	C551	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C102	1-115-585-11	TANTAL. CHIP 220uF 20%	4V	C552	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C103	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C553	1-117-720-11	CERAMIC CHIP 4.7uF 10V	
C201	1-107-812-11	TANTAL. CHIP 4.7uF 20%	6.3V	C554	1-117-720-11	CERAMIC CHIP 4.7uF 10V	
C202	1-115-585-11	TANTAL. CHIP 220uF 20%	4V	C555	1-107-765-11	TANTAL. CHIP 3.3uF 20%	16V
C203	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C556	1-107-765-11	TANTAL. CHIP 3.3uF 20%	16V
C301	1-111-253-11	TANTAL. CHIP 100uF 20%	6.3V	C557	1-135-238-21	TANTAL. CHIP 6.8uF 20%	10V
C302	1-162-912-11	CERAMIC CHIP 7PF 0.5PF 50V		C558	1-135-238-21	TANTAL. CHIP 6.8uF 20%	10V
C303	1-162-912-11	CERAMIC CHIP 7PF 0.5PF 50V		C559	1-117-720-11	CERAMIC CHIP 4.7uF 10V	
C304	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C560	1-117-370-11	CERAMIC CHIP 10uF 10V	
C305	1-117-919-11	TANTAL. CHIP 10uF 6.3V		C561	1-117-370-11	CERAMIC CHIP 10uF 10V	
C307	1-117-919-11	TANTAL. CHIP 10uF 6.3V		C564	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C308	1-117-919-11	TANTAL. CHIP 10uF 6.3V		C565	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C309	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C566	1-115-566-11	CERAMIC CHIP 4.7uF 10%	10V
C311	1-109-982-11	CERAMIC CHIP 1uF 10%	10V	C567	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
C312	1-113-600-11	TANTAL. CHIP 2.2uF 20%	6.3V	C601	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C314	1-104-929-11	TANTAL. CHIP 22uF 20%	6.3V	C602	1-117-720-11	CERAMIC CHIP 4.7uF 10V	
C315	1-109-982-11	CERAMIC CHIP 1uF 10%	10V	C604	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C316	1-109-888-11	TANTAL. CHIP 3.3uF 20%	6.3V	C605	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C317	1-109-982-11	CERAMIC CHIP 1uF 10%	10V	C606	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C319	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C607	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C320	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C608	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C322	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C610	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C324	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C611	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C327	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C802	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C328	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C803	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C329	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C805	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C501	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C806	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C502	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C807	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C503	1-162-919-11	CERAMIC CHIP 22PF 5%	50V	C808	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C504	1-162-919-11	CERAMIC CHIP 22PF 5%	50V	C809	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C505	1-162-917-11	CERAMIC CHIP 15PF 5%	50V	C811	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C506	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V	C812	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C507	1-162-962-11	CERAMIC CHIP 470PF 10%	50V	C813	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C508	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	C901	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C509	1-117-720-11	CERAMIC CHIP 4.7uF 10V		C902	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
				C903	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V






Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
C905	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V			< COIL >					
C906	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V		L301	1-414-754-11	INDUCTOR	10uH			
C907	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V		L502	1-414-754-11	INDUCTOR	10uH			
C908	1-107-765-11	TANTAL. CHIP	3.3uF	20%	16V		L551	1-412-031-11	INDUCTOR CHIP	47uH			
C909	1-117-920-11	TANTAL. CHIP	10uF		6.3V		L552	1-412-031-11	INDUCTOR CHIP	47uH			
C910	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V		L553	1-414-400-11	INDUCTOR	22uH			
C911	1-117-232-11	TANTALUM	22uF	20%	4V		L554	1-414-400-11	INDUCTOR	22uH			
C912	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V		L555	1-412-031-11	INDUCTOR CHIP	47uH			
C913	1-109-982-11	CERAMIC CHIP	1uF	10%	10V		L556	1-414-754-11	INDUCTOR	10uH			
C914	1-124-576-11	ELECT	220uF	20%	4V		L601	1-414-754-11	INDUCTOR	10uH			
C915	1-109-982-11	CERAMIC CHIP	1uF	10%	10V		L901	1-412-031-11	INDUCTOR CHIP	47uH			
C916	1-117-920-11	TANTAL. CHIP	10uF		6.3V		L902	1-411-804-21	COIL, CHOKE	10uH			
C917	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V		L903	1-414-754-11	INDUCTOR	10uH			
C918	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V			< TRANSISTOR >					
C919	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V								
C920	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V		Q501	8-729-922-10	TRANSISTOR	2SA1577-QR			
		< CONNECTOR >					Q551	8-729-904-87	TRANSISTOR	2SB1197K-R			
							Q552	8-729-929-12	TRANSISTOR	DTC143ZE-TL			
CN501	1-573-360-21	CONNECTOR, FFC/FPC 20P						< RESISTOR >					
CN551	1-573-917-11	CONNECTOR, FFC/FPC (ZIF) 8P											
CN802	1-778-711-11	CONNECTOR, FFC/FPC (ZIF) 5P					R101	1-216-837-11	METAL CHIP	22K	5%	1/16W	
		< DIODE >					R102	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
							R105	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
							R201	1-216-837-11	METAL CHIP	22K	5%	1/16W	
D101	8-719-017-58	DIODE MA8068					R202	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
D201	8-719-017-58	DIODE MA8068					R205	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
D301	8-719-066-17	DIODE FTZ6.8E-T148					R301	1-216-845-11	METAL CHIP	100K	5%	1/16W	
D303	8-719-017-58	DIODE MA8068					R302	1-216-845-11	METAL CHIP	100K	5%	1/16W	
D304	8-719-017-58	DIODE MA8068											
D801	8-719-052-72	LED CL-220HR-C (OPERATE)					R303	1-216-833-11	METAL CHIP	10K	5%	1/16W	
D901	8-719-421-27	DIODE MA728					R304	1-216-857-11	METAL CHIP	1M	5%	1/16W	
D902	8-719-066-16	DIODE RB491D-T146					R305	1-216-809-11	METAL CHIP	100	5%	1/16W	
		< FERRITE BEAD >					R307	1-216-809-11	METAL CHIP	100	5%	1/16W	
							R312	1-216-809-11	METAL CHIP	100	5%	1/16W	
							R313	1-216-809-11	METAL CHIP	100	5%	1/16W	
FB101	1-414-555-21	INDUCTOR, FERRITE BEAD					R501	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
FB201	1-414-555-21	INDUCTOR, FERRITE BEAD					R503	1-216-833-11	METAL CHIP	10K	5%	1/16W	
FB301	1-414-385-11	INDUCTOR, FERRITE BEAD					R504	1-216-853-11	METAL CHIP	470K	5%	1/16W	
FB304	1-414-385-11	INDUCTOR, FERRITE BEAD					R505	1-216-809-11	METAL CHIP	100	5%	1/16W	
		< IC >					R506	1-216-793-11	METAL GLAZE	4.7	5%	1/16W	
IC301	8-759-432-15	IC AK4314-VF-E2					R507	1-216-849-11	METAL CHIP	220K	5%	1/16W	
IC302	8-759-431-56	IC BA3577FS-E2					R508	1-216-841-11	METAL CHIP	47K	5%	1/16W	
IC501	8-759-458-04	IC SN761050A					R509	1-216-864-11	METAL CHIP	0	5%	1/16W	
IC551	8-759-390-25	IC MPC17A55FTA					R510	1-216-864-11	METAL CHIP	0	5%	1/16W	
IC552	8-759-358-40	IC TLC372CPW-E20					R511	1-216-817-11	METAL CHIP	470	5%	1/16W	
IC601	8-759-433-60	IC UPD63730GC-9EU					R513	1-216-853-11	METAL CHIP	470K	5%	1/16W	
IC602	8-759-334-38	IC MSM51V4400-70TS-K					R553	1-216-833-11	METAL CHIP	10K	5%	1/16W	
IC801	8-759-476-17	IC RU6715MF-0004					R560	1-216-833-11	METAL CHIP	10K	5%	1/16W	
IC802	8-759-449-23	IC AK93C55AV-L					R561	1-216-853-11	METAL CHIP	470K	5%	1/16W	
IC803	8-759-441-35	IC BU12101-E2					R562	1-216-809-11	METAL CHIP	100	5%	1/16W	
IC901	8-759-457-81	IC MPC1830VMEL					R601	1-216-864-11	METAL CHIP	0	5%	1/16W	
		< JACK >					R801	1-216-845-11	METAL CHIP	100K	5%	1/16W	
							R802	1-216-845-11	METAL CHIP	100K	5%	1/16W	
J301	1-778-179-11	JACK (♂) /REMOTE)					R803	1-216-853-11	METAL CHIP	470K	5%	1/16W	
J901	1-779-080-11	JACK,DC(POLARITY UNIFIED TYPE)					R804	1-216-853-11	METAL CHIP	470K	5%	1/16W	
		(DC IN 1.5V)					R805	1-216-864-11	METAL CHIP	0	5%	1/16W	
							R808	1-216-841-11	METAL CHIP	47K	5%	1/16W	
							R809	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	

MAIN

Ref. No.	Part No.	Description			Remark
R810	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R811	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R812	1-216-835-11	METAL CHIP	15K	5%	1/16W
R813	1-216-809-11	METAL CHIP	100	5%	1/16W
R814	1-216-809-11	METAL CHIP	100	5%	1/16W
R815	1-216-853-11	METAL CHIP	470K	5%	1/16W
R818	1-216-853-11	METAL CHIP	470K	5%	1/16W
R820	1-216-845-11	METAL CHIP	100K	5%	1/16W
R823	1-216-857-11	METAL CHIP	1M	5%	1/16W
R825	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R831	1-216-853-11	METAL CHIP	470K	5%	1/16W
R833	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R835	1-216-853-11	METAL CHIP	470K	5%	1/16W
R836	1-216-853-11	METAL CHIP	470K	5%	1/16W
R838	1-218-871-11	METAL CHIP	10K	5%	1/16W
R901	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W
R903	1-216-845-11	METAL CHIP	100K	5%	1/16W
R905	1-216-845-11	METAL CHIP	100K	5%	1/16W
R906	1-216-847-11	METAL CHIP	150K	5%	1/16W
R909	1-216-833-11	METAL CHIP	10K	5%	1/16W
R910	1-220-920-11	RES CHIP	0.47		1/2W
R911	1-216-809-11	METAL CHIP	100	5%	1/16W
R912	1-216-809-11	METAL CHIP	100	5%	1/16W
R914	1-216-864-11	METAL CHIP	0	5%	1/16W
< COMPOSITION CIRCUIT BLOCK >					
RB551	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K			
RB552	1-233-703-21	NETWORK RESISTOR (CHIP) 1M			
< SWITCH >					
S301	1-762-079-11	SWITCH, SLIDE (DIGITAL MEGA BASS)			
S801	1-692-847-21	SWITCH, PUSH (1 KEY) (OPEN/CLOSE)			
S802	1-762-078-11	SWITCH, SLIDE (◀ HOLD)			
S803	1-771-053-21	SWITCH, KEY BOARD (VOL +)			
S804	1-771-053-21	SWITCH, KEY BOARD (VOL -)			
S805	1-762-078-11	SWITCH, SLIDE (AVLS)			
< VIBRATOR >					
X301	1-767-124-11	VIBRATOR, CRYSTAL (16.9MHz)			
*****					
MISCELLANEOUS					
*****					
16	1-666-783-11	FLEXIBLE BOARD			
56	1-666-784-11	FLEXIBLE BOARD (CLV)			
58	1-475-297-11	SWITCH UNIT			
△ 69	X-4949-080-1	OPTICAL PICK-UP ASSY (ODX-1A)			
M901	8-835-594-01	MOTOR, DC SSM-01C03A/J-S (SPINDLE)			
M902	1-698-764-11	MOTOR, SLED (SLED)			
*****					
ACCESSORIES & PACKING MATERIALS					
*****					
1-473-677-11	REMOTE CONTROL UNIT (RM-MZE50MP) (JE)				
1-475-375-11	REMOTE CONTROL UNIT (RM-MZ35)				
(EXCEPT JE)					

Ref. No.	Part No.	Description	Remark
	1-528-252-21	BATTERY CHARGER (BC-7S) (UK)	
	1-528-543-22	BATTERY, NI-CD (NC-6WM) (AEP,UK,FR,E)	
	1-528-580-21	BATTERY CHARGER (BC-7HT) (JE,E)	
	1-528-743-11	BATTERY, NICKEL HYDROGEN (JE)	
	1-528-744-21	BATTERY CHARGER (BC-7DY) (AEP,FR)	
	1-569-007-11	ADAPTOR, CONVERSION 2P (JE,E)	
	3-008-521-01	CASE, BATTERY CHARGE	(EXCEPT US,Canadian)
	3-860-459-11	MANUAL, INSTRUCTION (ENGLISH,SPANISH)	(JE)
	3-860-459-21	MANUAL, INSTRUCTION (FRENCH,GERMAN)	(JE)
	3-860-459-31	MANUAL, INSTRUCTION (ENGLISH,FRENCH)	(AEP,UK,FR,E)
	3-860-459-41	MANUAL, INSTRUCTION (SPANISH,CHINESE)	(AEP, E)
	3-860-459-51	MANUAL, INSTRUCTION (JAPANESE, CHINESE,KOREAN)	(JE)
	3-860-459-61	MANUAL, INSTRUCTION (GERMAN, DUTCH)	(AEP, FR)
	3-860-459-71	MANUAL, INSTRUCTION (SWEDISH,FINNISH)	(AEP)
	3-860-459-81	MANUAL, INSTRUCTION (ITALIAN, PORTUGUESE)	(AEP)
	3-860-459-91	MANUAL, INSTRUCTION (ENGLISH) (US)	
	3-860-459-92	MANUAL, INSTRUCTION (ENGLISH,FRENCH)	(US, Canadian)
	4-972-888-01	CASE, CARRYING	
	8-953-091-91	HEADPHONE MDR-E838MP//K SET (JE)	
	8-953-218-90	HEADPHONE MDR-E838SP//K SET	(EXCEPT US,JE)
	8-953-278-90	HEADPHONE MDR-A34SP SET (US)	
	X-3329-657-1	ATTACHMENT ASSY (EXCEPT US)	

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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## Printing Method for Large Sized Documents Such As Circuit Diagrams

Printing the page that exceeds A4-size two pages (or letter size) is possible by specifying the print range. (Acrobat Reader Version 4.0 or later)

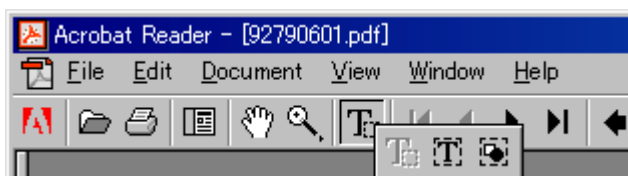
1. The enlarged print is made, if a smaller range than A4 size is specified and the A4 size is selected as a print paper.
2. Almost real sized print is made, if the range is specified, meeting the print paper size.
3. The reduced print is made, if a larger range than the print paper size is specified.

### Printing by Specifying a Range

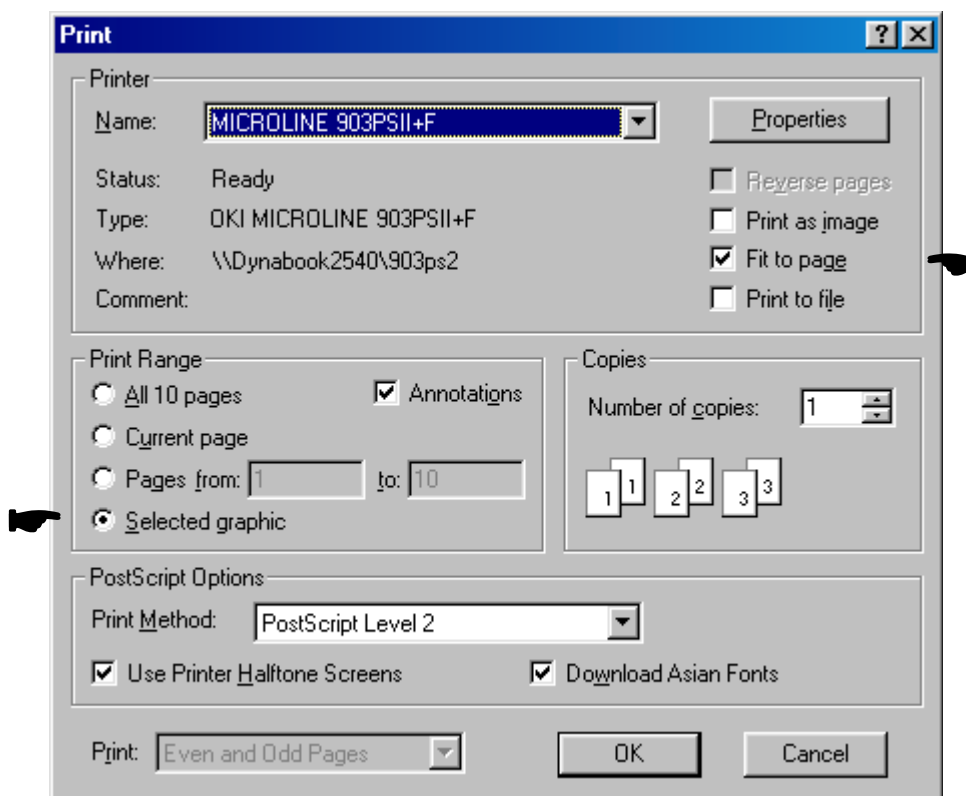
In printing out the drawings such as a schematic diagram and a printed wiring board larger than the printed paper size, they can be printed by specifying the range. (Acrobat Reader Version 4.0 or later)

1. Display the page to be printed.
2. From the File menu, select [Page Setup] and set the paper size.
3. From the Command bar, select [Graphic Select Tool].

(Keep pressing  , select  )



4. Dragging the cursor, enclose the range on the page to be printed.
5. From the File menu, select [Print] and make sure that the [Selected Graphic] is already checked. Also, if [Fit to page] is checked, the selected range is enlarged or reduced (and rotated as necessary) meeting the paper size.



6. To cancel the printed range, click an arbitrary position on the screen.

## REVISION HISTORY

Clicking the version allows you to jump to the revised page.

Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

[illegible]